TailorMat Nanoparticles for Easy Clean Glass Surfaces

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Contents

Conference Information

Micro- and Nano-Engineering (MNE) is an international conference on micro- and nanofabrication using lithography and related techniques. On average the MNE conference has 400-500 participants. The conference proceedings are published in Microelectronic Engineering.

The MNE 2007 conference in Copenhagen will be the 33rd in a series that started in Cambridge in 1975, most recently held in Vienna (2005) and Barcelona (2006).

MNE has a sister conference, the Electron-, Ion-, and Photon-Beam and Nanotechnology Conference (EIPBN) in the USA and the Microprocesses and the Nanotechnology Conference (MNC) in Japan. It is a tradition that the author of the "Best paper" of at least one of the sister conferences is giving an invited talk at MNE.

Venue

The conference venue is the Radisson SAS Falconer which is a modern hotel-, meeting- and event-centre hosting major conferences, popular musicals and concerts. Public transportation, including the Copenhagen Metro subway, is within walking distance and the Copenhagen Airport is a mere 20 minute drive away.

Radisson SAS Falconer Centre
Falconer Allé 9
2000 Frederiksberg
Phone: + 45 38 15 80 01

Registration / Hospitality desk - opening hours during the conference

Sunday, 23 September 18:00-20:00 hrs.
Monday, 24 September 08:00-17:00 hrs.
Tuesday, 25 September 08:00-17:00 hrs.
Wednesday, 26 September 08:00-17:00 hrs.

Conference Structure

The MNE 2007 conference begins with a welcome reception on Sunday 23 September 2007 in the evening. The technical program starts on Monday 24 September and ends in the afternoon of Wednesday 26 September.

The program will feature plenary and invited presentations by a number of internationally recognised authors, contributed oral and poster presentations and a commercial exhibition. In addition to the plenary

sessions, there will be three parallel sessions. The oral presentations and posters have been reviewed by the International Program Committee which has also selected the plenary and invited talks.

Exhibition

The MNE 2007 commercial exhibition will start on Sunday September 23, 2007 in the afternoon followed by the MNE 2007 Welcome Reception. It will continue during the MNE 2007 conference until Wednesday September 26, 2007.

Publication of MNE 2007 Proceedings

The proceedings of the MNE 2007 conference will be published by Elsevier in the *Microelectronic Engineering* Journal, after the standard peer review process. Manuscripts have to be submitted on-line by 1 October 2007. Manuscripts delivered after this deadline will note be published along with the conference proceedings. Further information is available on www.mne07.org.

Social events

Welcome reception at Radisson SAS Falconer, Sunday 23 September 19:00 hrs.
A light buffet will be served and the exhibition will open.

Reception at Copenhagen City Hall, Monday, 24 September, 19:00 hrs.
The reception is hosted by the City Council of Copenhagen and will take place at the City Hall.
The reception will start punctually at 19:00 hrs.
Dress: Informal

Conference Dinner, Wallmans Saloner, Tuesday 25 September at 18:30 hrs.
Wallmans Salonger put on an amazing international dinner show, held in one of the capital's wonderful historic and centrally-located buildings, The Circusbuilding. While you are enjoying a fantastic four-course menu, artists will perform on 9 different stages scattered around the restaurant. Wallmans Salonger can guarantee an unforgettable evening, including a gourmet dinner, show and entertainment at the same time.
But it doesn't stop there: After a four-hour gastronomic and musical voyage for the senses, the Circusbuilding transforms to Copenhagen's biggest nightclub. The stage and the dancefloor are left to the guests for the rest of the night.
Dress: Informal

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Grant Willson
Stefan Wurm

Scientific Program

Sunday 23 September

18:00 - 20:00 **Registration**

19:00 - 20:30 **Exhibition Opening**

19:00 **Welcome reception.**

Monday 24 September

Welcome and Opening of MNE07 conference

Place: Audience
08 :30 Dr. Anja Boisen
Conference Chair
Professor
Technical University of Denmark, DK

Hanne Severinsen
Chairwoman of the parliaments Science and Technology Committee

Anders Kristensen
Conference Program Chair
Associate Professor
Technical University of Denmark, DK

PLENARY

PL1 - Plenary session I

Place: Audience
Session Chairs: Dieter Kern and Anders Kristensen

PL1-1 **Low-cost MEMS for Applications in Medical Technology**
9:00 Göran Stemme
Royal Institute of Technology (KTH), STOCKHOLM, Sweden

PL1-2 **Power of One**
9:45 Yan Borodovsky
Intel Corporation, HILLSBORO, United States of America

10:30 Coffee break

Oral parallel sessions

MONDAY 24 SEPTEMBER

1A - Nanoscale Engineering & Fabrication I

Place : Audience
Session Chairs: Gabriel Abadal Berini and Søren Dohn

1A-1 **Large Area Arrays of Metal Nanowires**
11:00 Vaida Auzelyte[1], Harun H. Solak[1], Yasin Ekinci[1], Robert MacKenzie[2], Vörös Janos[2], Sven Olliges[2], Ralph Spolenak[2]
[1]Paul Scherrer Institute, VILLIGEN, Switzerland
[2]ETH, ZÜRICH, Switzerland

1A-2 **Tunable surface plasmon resonance wavelength of gold nanoparticles embedded in lead zirconate titanate (PZT) films with an applying external electric field**
11:20 Hsuen-Li Chen, K. C. Hsieh, D. H. Wan
National Taiwan University, TAIPEI, Taiwan

1A-3 **In-situ observation of 3-D nano-structure growth on focused-ion-beam chemical-vapor-deposition by scanning electron microscope**
11:40 Reo Kometani
University of Hyogo, HYOGO, Japan

1A-4 **Patterned conducting polymers for all-polymer cell electroporation microsystems**
12:00 Niels Larsen[1], Thomas S. Hansen[2], Keld West[3], Ole Hassager[2], Noemi Rozlosnik[1]
[1]Risoe National Laboratory - DTU, ROSKILDE, Denmark, [2]Department of Chemical Engineering, DTU, LYNGBY, Denmark,
[3]Dept. of Chem., University of Copenhagen, COPENHAGEN, Denmark

1B - Process Diagnostics & Control

Place : Room 101
Session Chairs: Helmut Schift and NN

1B-1 **Imprintability of polymers for thermal nanoimprint**

11:00 H.-C. Scheer, N Bogdanski, M Wissen, S Möllenbeck
University of Wuppertal, WUPPERTAL, Germany

1B-2 **Computationally efficient modelling of pattern dependencies in the micro-embossing of thermoplastic polymers**

11:30 H.K. Taylor[1], D.S. Boning[1], C. Iliescu[2], B. Chen[2]
[1]MIT, CAMBRIDGE, United States of America
[2]IBN, SINGAPORE, Singapore

1B-3 **The accuracy metrology challenge for microelectronic advance node developments through CD-AFM and CD-SEM**

11:50 Johann Foucher, Pascal Faurie
CEA/LETI-MINATEC, GRENOBLE, France

1B-4 **Dopant profiling and electrical junction delineation in the SEM.**

12:10 Augustus Chee[1], Conny Rodenburg[2], Colin Humphreys[1]
[1]University of Cambridge, CAMBRIDGE, United Kingdom
[2]University of Sheffield, SHEFFIELD, United Kingdom

1C - Nanodevices I

Place : Room 201
Session Chairs: Guillermo Villanueva and Zachery Davis

1C-1 **Fabrication of 22 nm T-gates for HEMT applications**

11:00 Steven Bentley, Xu Li, David Moran, Iain Thayne
University of Glasgow, GLASGOW, United Kingdom

1C-2 **Self-assembled branched InAs nanowires for nanoelectronic applications**

11:20 Dmitry Suyatin, Jie Sun, A. Fuhrer, D. Wallin, L.E. Froberg, L.S. Karlsson, I. Maximov, L.R. Wallenberg, L. Samuelson, H.Q. Xu
Lund University, LUND, Sweden

1C-3 **Toolkit for manipulation and characterization of nanostructures**

11:40 Peter Bøggild, Kristian Mølhave
Technical University of Denmark, KGS. LYNGBY, Denmark

1C-4 **Vertical Devices of self-assembled hybrid organic/inorganic monolayers based on tungsten polyoxometalates: a step towards molecular electronic devices**

12:10 Eleni Makarona[1], Eleftherios Kapetanakis[1], Dimitrios Velessiotis[1], Antonios Douvas[1], Panagiotis Argitis[1], Pascal Normand[1], Teodor Gotszalk[2], Miroslaw Woszczyna[2], Nikos Glezos[1]
[1]NCSR „Demokritos„, ATHENS, Greece
[2]F.of Microsystem Electronics & Photonics, WROCLAW, Poland

12:30 End of session

Lunch

2A - Micro & Nanosystems for Biology I

Place : Audience
Session Chairs: Evangelos Gogolides and Oliver Geschke

2A-1 **Cell-based field effect devices for cell functional analysis**

14:00 Toshiya Sakata[1], Yuji Miyahara[2]
[1]The University of Tokyo, TOKYO, Japan
[2]National Institute for Materials Science, TSUKUBA, Japan

2A-2 **Multiplex polymerase chain reaction (PCR) on a SU-8 chip**

14:30 Troels Balmer Christensen[1], Dang Doung Bang[2], Anders Wolff[3]
[1]Technical University of Denmark, KGS. LYNGBY, Denmark
[2]Department of Poultry, Fish and Fur Anim, DK-8200 ÅRHUS N., Denmark
[3]MIC - Department of Micro and Nanotechno, DK-2800 KGS. LYNGBY, Denmark

2A-3 **Fabrication and characterization of plasmonic nanolens for applications in Biophotonics**

14:50 Francesco De Angelis
Università della Magna Graecia, CATANZARO, Italy

2A-4 **Biodegradable polymer tubes with controlled 3D micro- and nanotopography**

15:10 Nikolaj Gadegaard, Kris Seunarine, Mohamed Khan, Osian Meredith, Chris Wilkinson, Mathis Riehle
University of Glasgow, GLASGOW, United Kingdom

2B - Nanoimprint Lithography & Technology I

Place : Room 101
Session Chairs: Clivia Torres and Santos Merino

2B-1 **Minimizing Linewidth Roughness in Step and Flash Imprint Lithography**

14:00 D Resnick
Molecular Imprints, AUSTIN, TX, United States of America

2B-2 **Fabrication and characterisation of nanoimprinted band edge lasers**

14:20 Vincent Reboud[1], P. Lovera[1], N. Kehagias[2], M. Zelsmann[3], Freimut Reuther[4], Gabi Gruetzner[5], G. Redmond[1], C.M. Sotomayor Torres[1],
[1]*Tyndall National Institute, CORK, Ireland,*
[2]*Tyndall National Institute, University C, CORK, Ireland,*
[3]*LTM-CNRS, GRENOBLE CEDEX 9, France,*
[4]*Micro Resist Technology GmbH, BERLIN, Germany,*
[5]*Microresist technology GmbH, BERLIN, Germany*

2B-3 **Three Dimensional Microsystems by Reversal Nanoimprint for Biomedical Applications**

14:40 Stella Pang
University of Michigan, ANN ARBOR, MI, United States of America

2B-4 **Nanoimprint applications toward 22nm node CMOS devices**

15:10 Ikuo Yoneda, Shinji Mikami, Masamitsu Ito, Tetsuro Nakasugi, Tatsuhiko Higashiki
Toshiba Corp., YOKOHAMA, Japan

2B-5 **Direct Nanoimprinting of Metals**

15:30 Stefano Buzzi[1], Yasin Ekinci[1], Franck Robin[2], Victor Callegari[3], Jörg F. Löffler[1]
ETH Zurich, Metal physics and Technology, ZURICH, Switzerland
ETH Zurich, Electronics Laboratory, ZURICH, Switzerland
EMPA, Electronics/Metrology Laboratory, DÜBENDORF, Switzerland

2C - Nanodevices II

Place : Room 201
Session Chairs: Rüdiger Berger and Maria Nordström

2C-1 **Micro / Nanobiosensor technology platforms for clinical diagnosis**

14:00 Laura M. Lechuga
CNM-CSIC, TRES CANTOS, MADRID, Spain

2C-2 **Fabrication and characterization of Ta2O5 photonic feedback structures**

14:20 Thorsten Wahlbrink
AMO GmbH, AACHEN, Germany

2C-3 **Fabrication of Bragg Gratings with Deep Grooves in LiNbO3 Ridge OpticalWaveguides**

14:50 Asamira Suzuki
Matsushita Electric Industrial Co., Ltd., KYOTO, Japan

2C-4 **Plasmonic Components Fabrication by Lithographic Patterning and Nanoimprint**

15:10 Alexandra Boltasseva[1], Kasper Jørgensen[2], Rasmus Pedersen[2], Kristian Leosson[3], Rasmus Nielsen[2], Irene Fernandez-Cuesta[4], Ilya Radko[5], Sergey Bozhevolnyi[5], Anders Kristensen[2]
[1]Technical University of Denmark, LYNGBY, Denmark
[2]MIC, DTU, LYNGBY, Denmark
[3]University of Iceland, REYKJAVIK, Iceland
[4]CNM-IMB, BARCELONA, Spain
[5]University of Aalborg, AALBORG, Denmark

2C-5 **Large-scale arrays of tunnel junctions with magnetic heterodimers**

15:30 Pasquale Marzo, Pasquale Marzo, Luca Sanarica, Roman Krahne, Antonio Della Torre, Elisabetta Primiceri, Angela Fiore, Teresa Pellegrino, Liberato Manna, Roberto Cingolani, Ross Rinaldi, Giuseppe Maruccio
Isufi, Università del Salento, LECCE, Italy

15:50 End of session

Poster session I and II

16:00-17:00 Poster session I

17:00-18:00 Poster session II

Social event

19:00 Reception at the Copenhagen City Hall

TUESDAY 25 SEPTEMBER

3A - Resists & Resist Processing

Place : Audience
Session Chairs: Peter Hudek and Pieter Kruit

3A-1 **High aspect ratio micro/nano machining with proton beam writing on aqueous developable - easily stripped negative chemically amplified resists**

09:00 Margarita Chatzichristidi[1], Ioannis Raptis[1], Jeroen Anton Van Kan[2], Frank Watt[2]
[1]NCSR „Demokritos„, AGHIA PARASKEVI, Greece
[2]CIBA,Physic Dept. Nat.Univ. of Singapore, SINGAPORE, Singapore

3A-2 **Novel methods to pattern polymers for microfluidics**

09:30 Cristina Martin[1], Andreu Llobera[1], T. Leïchlé[2], Guillermo Villanueva[3], Anja Voigt[4], V. Fakhfouri[3], J. Yeon[3], N. Berthet[2], J. Bausells[1], Gabi Gruetzner[4], L. Nicu[2], J. Brugger[3], Francesc Perez-Murano[1]
[1]CNM-IMB-CSIC, BARCELONA, Spain
[2]LAAS-CNRS, TOULOUSE, France
[3]LMIS1-EPFL, LAUSANNE, Switzerland
[4]Microresist technology GmbH, BERLIN, Germany

3A-3 **Nanoindentation testing of SU-8 photoresist mechanical properties**

09:50 Ala'aldeen Al-Halhouli[1], Ingo Kampen[2], Thomas Krah[1], Stephanus Büttgenbach[1]
[1]Institute for Microtechnology, BRAUNSCHWEIG, Germany
[2]Institute for Particle Technology, BRAUNSCHWEIG, Germany

3A-4 **Epoxide Functionalized Molecular Resists for High Resolution Electron Beam Lithography**

10:10 Clifford Henderson[1], Richard Lawson[1], Cheng-Tsung Lee[1], Robert Whetsell[1], Wang Yueh[2], Jeanette Roberts[2], Laren Tolbert[1]
[1]Georgia Institute of Technology, ATLANTA, United States of America
[2]Intel Corporation, HILLSBORO, OR, United States of America

3B - Nanoimprint Lithography & Technology II

Place : Room 101
Session Chairs: Hella Sheer and NN

3B-1 **Advances in CLIPP for the fabrication of surface modified micro-fluidic devices in non - fluorescing UV cured materials.**

09:00 Mike Watts[1], R. Sebra[2], H. Simms[2], K. Masters[2], T. Haraldsson[2], K. Anseth[2], C. Bowman[2]
[1]Impattern Solution, AUSTIN, United States of America
[2]Department of Chemical and Biological En, UNIVERSITY OF COLORADO, United States of America

3B-2 **Sub-micron sized patterning on flexible PET substrate using flexible DLC coated PVC template**

09:30 Hee-Chul Lee[1], Sung-Hoon Hong[2], Heon Lee[2]
[1]LG electronics, DAEJEON, South-Korea
[2]Korea University, SEOUL, South-Korea

3B-3 **Optical Negative Index Meta-materials at Near-IR Wavelength Fabricated by Nanoimprint Lithography**

09:50 Wei Wu[1], Evgenia Kim[2], Ekaterina Ponizovskaya[1], Zhaoning Yu[1], Yongmin Liu[2], Alex Bratkovsky[1], Yuen Ron Shen[2], Nick Fang[3], Xiang Zhang[2], Shih-Yuan Wang[1], R. Stan Williams[1]
[1]Hewlett-Packard, PALO ALTO, United States of America
[2]University of California, Berkeley, BERKELEY, CA, United States of America
[3]University of Illinois, URBANA-CHAMPAIGN, IL, United States of America

3B-4 **Nanoimprint for future non-volatile memory and logic devices**

10 :20 Matthias Meier, Christian Nauenheim, Sandra Gilles, Dirk Mayer, Carsten Kügeler, Rainer Waser
Forschungszentrum Juelich GmbH, JÜLICH, Germany

3C - Maskless Litho. & Pattern Transfer Tech.

Place : Room 201
Session Chairs: Jürgen Brügger and Falco C.M. Van Delft

3C-1 **Etching of sub-micrometer structures through Stencil**

09 :00 Guillermo Villanueva, Oscar Vazquez-Mena, Marc van den Boogaart, K Sidler, V Savu, J Brugger
Ecole Politechnique Fédérale de Lausanne, LAUSANNE, Switzerland

3C-2 **Enhanced robustness of the cryogenic process for silicon deep etching**

09:20 El Houcine Oubensaid[1], Thomas Tillocher[2], Remi Dussart[2], Philippe Lefaucheux[2], Pierre Ranson[2], Xavier Mellhaoui[2], Mohamed Boufnichel[3], Lawrence Overzet[4], Laurianne Pichon[2], Corinne Duluard[2]
[1]Gremi, ORLEANS CEDEX 2, France
[2]GREMI, ORLEANS, France
[3]STMicroelectronics, TOURS, France
[4]UTDallas, RICHARDSON, United States of America

3C-3 **Very high resolution etching of magnetic nanostructures in organic gases**

09:40 Chris Wilkinson[1], X Kong[1], D Krasa[2], W Williams[2], J Chapman[1], S McVitie[1], H P Zhou[1]
[1]University of Glasgow, GLASGOW, United Kingdom
[2]School of GeoSciences, EDINBURGH, United Kingdom

3C-4 **Nano-xerography - Guiding the assembly of nanoscale building blocks**

10:00 Andreas Stemmer, Livia Seemann, Dominik Ziegler, Nicola Naujoks
ETH Zurich, ZURICH, Switzerland

10:30 Coffee break

4A - Micro and Nanosystems for Biology II

Place : Audience
Session Chairs: Christophe Vieu and Harry Heinzelmann

4A-1 **Nanotechnology and biointerfaces**
11:00 Bengt Kasemo
Chalmers Univ. Techn., GOTHENBURG, Sweden

4A-2 **Evaporation based micropump integrated into scanning force microscope probe**
11:30 Friedjof Heuck[1], Thomas Hug[2], Terunobu Akiyama[1], André Meister[3], Harry Heinzelmann[3], Nicolas F. De Rooij[1], Urs Staufer[1]
[1]Institute of Microtechnology, NEUCHÂTEL, Switzerland
[2]Helbling Technik, ZURICH, Switzerland
[3]CSEM, NEUCHATEL, Switzerland

4A-3 **Contact force control of piezoresistive cantilevers with in-plane nanotips for femtoliter droplet deposition**
11:50 Daisuke Saya, Thierry Leïchlé, Liviu Nicu, Jean-Bernard Pourciel, Fabrice Mathieu, Christian Bergaud
LAAS-CNRS, TOULOUSE, France

4A-4 **Three-dimensional optical readout of microcantilever arrays: towards a DNA biochip based on nanomechanics**
12:10 Montserrat Calleja, Johan Mertens, Daniel Ramos, Javier Tamayo
Imm-Csic, TRES CANTOS, Spain

4A-5 **On Chip Differentiation of Human Mesenchymal Stem Cells into Adipocytes**
12:30 Yong Chen[1], X.F Ni[1], C Crozatier[1], L Sensebé[2], li Wang[1], Y Fan[1], P.D. He[3]
[1]Ecole Normale Supérieure, PARIS, France
[2]Etablissement Français du Sang Centre-At, TOUR, France
[3]East China Normal University, SHANGHAI, France

4B - Nanoscale Engineering & Fabrication II

Place : Room 101
Session Chairs: Francesc Perez Murano and Kristian Mølhave

4B-1 **Electrical characterization of suspended Pt nanowires grown by Electron Beam-Induced Deposition (EBID) with water vapour assistance**

11:00 Gian Carlo Gazzadi, Stefano Frabboni, C. Menozzi, L. Incerti
CNR - INFM S3, MODENA, Italy

4B-2 **Templated fabrication of nanoring arrays based on laser interference lithography**

11:20 Ran Ji[1], Woo Lee[2], Mato Knez[2], Roland Scholz[2], Kornelius Nielsch[2], Ulrich Goesele[2]
[1]NIL Technology, KONGENS LYNGBY, Denmark
[2]MPI Halle, HALLE, Germany

4B-3 **ICP-RIE etching of high aspect ratio GaAs nanowires based on Cl2/N2 chemistry**

11:40 Laurent Jalabert
LAAS-CNRS / The University of Toulouse, TOULOUSE, France

4B-4 **Nanofabrication of anti-reflective quartz surfaces using block copolymer structures**

12:00 Christian David[1], Pratap Sahoo[1], Vaida Auzelyte[1], Yasin Ekinci[1], Harun Solak[1], Elizabeth Tocce[2], Chi-Chun Liu[2], Karl Stuen[2], Paul Nealey[2]
[1]Paul Scherrer Institut, VILLIGEN, Switzerland
[2]University of Wisconsin, MADISON, United States of America

4B-5 **Colloidal Nanocrystals: Novel Perspective for Micro and Nano Fabrication Towards Opto-Electronic and Sensing Applications**

12:20 M. Lucia Curri
CNR Italian National Research Council, BARI, Italy

4C - Electron & Ion Beam Lithography

Place : Room 201
Session Chairs: Alex Robinson and John Cleaver

4C-1 **Integration of EBDW of one entire metal layer as substitution for optical lithography in 220 nm node microcontrollers**

11 :00 Johannes Kretz[1], Heiko Röper[2], Christian Arndt[1], Thomas Bischoff[3], Kang-Hoon Choi[1], Guido Goldbeck[3], Markus Gunia[2], Christoph Hohle[1], Tarek Lutz[1], Ulf Schubert[2], Ivonne Schwerdtfeger[2], Frank Thrum[1], Martin Vennekamp[2]
[1]Qimonda Dresden GmbH & Co. OHG, DRESDEN, Germany
[2]Infineon Technologies Dresden GmbH & Co, DRESDEN, Germany
[3]Infineon Technologies AG, NEUBIBERG, Germany

4C-2 **First deflection results of multi-electron-beam blanker array for sub-10 nm electron beam induced deposition**

11:30 Carel Heerkens[1], M.J. Van Bruggen[2], Y. Zhang[2], B. Van Someren[2], P. Kruit[2]
[1]TUDelft, DELFT, The Netherlands
[2]TUDelft, charged particle optics tnw, DELFT, The Netherlands

4C-3 **A Single-Stranded Self-Aligned Carbon Nanotube Emitter Array**

11:50 Justin Ho, Takahito Ono, Masayoshi Esashi
Tohoku University, SENDAI, Japan

4C-4 **Prototyping with focused ion beams: matching the control of pattern dimensions with the control of material properties**

12:10 Oliver Wilhelmi, Steve Reyntjens
FEI Company, EINDHOVEN, The Netherlands

4C-5 **Nano-pillars and nano-holes fabricated by Ion Beam Induced Deposition**

12:30 Ping Chen, Paul Alkemade, Huub Salemink, Mengyu Wu
Delft University of Technology, DELFT, The Netherlands

13:00 End of session

Lunch

PL2 - Plenary session II

Place : Audience
Session Chairs: Lars Montelius and Alexandra Boltasseva

PL2-1 **Nanobio interface using neurons and receptor proteins**
14:30 Keiichi Torimitsu
NTT Basic Research Laboratories, ATSUGI, KANAGAWA, Japan

PL2-2 **Silicon nanophotonics on CMOS**
15:15 Dries Van Thourhout
Ghent University/IMEC, GENT, Belgium

16 :00 Coffee break

5A - Nanoscale Engineering and Fabrication III

Place : Audience
Session Chairs: Andreas Stemme and Harun Solak

5A-1 **Self-assembled InAs QDs grown on AlGaAs surfaces**

16:30 Matthias Schramboeck, A. M. Andrews, P. Klang, W. Schrenk, G. Strasser
TU Vienna, VIENNA, Austria

5A-2 **Fast thermal nanoimprint lithography by a stamp with integrated heater**

16:50 Massimo Tormen
TASC laboratory, BASOVIZZA (TS), Italy

5A-3 **Silicon Fresnel zone plates for high heat load x-ray microscopy**

17 :10 Joan Vilà-Comamala[1], Konstantins Jefimovs[2], Jörg Raabe[3], Burkhard Kaulich[4], Christian David[3]
[1]Laboratori de Llum Sincrotró, BELLATERRA, Spain
[2]EMPA - Material Science & Technology, ZURICH, Switzerland
[3]Paul Scherrer Institut, VILLIGEN-PSI, Switzerland
[4]ELETTRA Synchrotron, TRIESTE, Italy

5B - Nanodevices III

Place : Room 101
Session Chairs: Zoran Djuric and Andris Sternberg

5B-1 **Single-electron tunnelling via quantum dot cavities built on a silicon suspension nanobridge**

16:30 Jun Ogi[1], Yoshishige Tsuchiya[1], Shunri Oda[1], Hiroshi Mizuta[2]
[1]Tokyo Institute of Technology, TOKYO, Japan
[2]University of Southampton, SOUTHAMPTON HAMPSHIRE, United Kingdom

5B-2 **Prospect for Logic-on-a-wire: Omega-gate NMOS Inverter Fabricated on Single Si Nanowire**

16 :50 Kirsten Moselund, Didier Bouvet, Adrian Ionescu
EPFL, LAUSANNE, Switzerland

5B-3 **Focused Ion Beam Engineered Nanogap in a Palladium Microwire as a Mechanical Switch for Hydrogen Detection**

17 :10 Thomas Kiefer[1], Fred Favier[2], Oscar Vazquez-Mena[1], Guillermo Villanueva[1], Juergen Brugger[1]
[1]Ecole Polytechnique Federale de Lausanne, LAUSANNE, Switzerland
[2]CNRS Universite Montpellier 2, MONTPELLIER, France

5C - Electron and Ion Beam Lithography II

Place : Room 201
Session Chairs: Christian David and Jose Maria de Tercsa

5C-1 **Chemically Amplified Molecular Resists for E-Beam Lithography**
16:30 Alex Robinson, Francis Gibbons, Sara Diegoli, Mayanditheuar Manickam, Jon Preece, Richard Palmer
University of Birmingham, BIRMINGHAM, United Kingdom

5C-2 **Nano-dot and pit arrays with a pitch of 25 nm x 25 nm fabricated by EB drawing, RIE and nano-imprinting toward 1 Tb/in2 storage**
16:50 Sumio Hosaka, Zulfakri Mohamad, Masumi Shirai, Hirotaka Sano, You Yin, Akihira Miyachi, Hayato Sone
Gunma University, KIRYU, Japan

5C-3 **Improved aspect ratio in high resolution features with low voltage converted-SEM lithography on negative resist HSQ**
17:10 Maria Chiara Ubaldi
CoreCom, MILANO, Italy

17 :30 End of session

Social event

18 :00 Conference dinner arrival and welcome drink
19 :00 Start of dinner show

WEDNESDAY 26 SEPTEMBER

PLENARY

PL3 - Plenary session III

Place : Audience
Session Chairs: Stella Pang and Anja Boisen

PL3-1 **Nanostructures and functional glass surfaces**
09:00 Elin Sondergard
Surface du Verre et Interfaces, AUBERVILLIERS, France

6A - Microsystems & Their Fabrication I

Place : Audience
Session Chairs: Joan Bausells and Adrian Ionescu

6A-1 **A Compact and Disposable Transdermal Drug Delivery System**
10:00 Marco Matteucci[1], M Casella[2], M Bedoni[3], M Donetti[3], F Gramatica[2], E Di Fabrizio[4]
[1]Sincrotrone Trieste, TRIESTE, Italy
[2]Fondazione Don Gnocchi IRCCS-ONLUS, MILAN, Italy
[3]Università degli Studi di Milano, MILAN, Italy
[4]TASC-INFM-CNR, TRIESTE, Italy

6A-2 **Miniaturized, highly tunable diffractive optical elements based on electroactive polymers**
10:30 Manuel Aschwanden, Andreas Stemmer
ETH Zurich, ZURICH, Switzerland

6A-3 **Development of fine-pitch current carrying conductors for interconnection of a silicon mass flow sensor on a polymeric microfluidic chip**
10:50 Johanna May[1], Ricardo Ehrenpfordt[1], Peter Rothacher[1], Claas Müller[2], H. Reinecke[2]
[1]Robert Bosch GmbH, GERLINGEN, Germany
[2]IMTEK, FREIBURG, Germany

6A-4 **Optimized SU-8 processing for the fabrication of thin polymer cantilevers**

11:10 Stephan Keller[1], Gabriela Blagoi[1], Daniel Haefliger[2], Anja Boisen[1]
[1]Technical University of Denmark, LYNGBY, Denmark
[2]Harting Mitronics, BIEL, Switzerland

6A-5 **Monolithic integration of MEMS-CMOS RF resonators in the VHF and UHF bands. A comparative study of 0.35-um and 0.18-um technologies**

11 :30 Gabriel Abadal[1], Jordi Teva[1], Gonzalo Murillo[1], Joan Lluis López[1], Arantxa Uranga[1], Jaume Verd[2], Francesc Torres[1], Jaume Esteve[3], Francesc Pérez-Murano[3], Núria Barniol[1]
[1]Universitat Autònoma de Barcelona, BARCELONA, Spain
[2]Universitat de les Illes Balears, PALMA DE MALLORCA, Spain
[3]Inst. de Microelectrònica de Barcelona, BARCELONA, Spain

6B - Nanoscale Engineering & Fabrication IV

Place : Room 101
Session Chairs: Didier Louis and Peter Bøggild

6B-1 **Aligned Quantum Dot Molecules with 4 Satlelite Dots by Self-Assembly Approach**

10:00 Somsak Panyakeow, N. Siripitakchai, Cho Cho Thet, P. Changmoang, S. Thainoi, S. Kanjanachuchai, S. Panyakeow
Chulalongkorn University, BANGKOK, Thailand

6B-2 **Broad band transmission characterisation of silicon nitride photonic crystals for visible wavelengths**

10 :20 J Kouba, S. Kiss, M. Kubalski, B. Loechel
BESSY GmbH, BERLIN, Germany

6B-3 **Pushing the limits of nano-patterning with extreme ultraviolet interference lithography**

10:40 Harun Solak
Paul Scherrer Institut, VILLIGEN PSI, Switzerland

6B-4 **Nanoscale Surface Patterning: Directed Assembly and Microcontact Printing of Nanoparticles**

11:10 Andrea Decker, Tobias Kraus, Laurent Malaquin, Heinz Schmid, Heiko Wolf
IBM Zurich Research Laboratory, RUESCHLIKON, Switzerland

6B-5 **Low-reflective hydrophobic silicon nanograss**

11 :30 Jiann Shieh[1], Bing-Shia Chen[2], Fu-Ju Hou[1], Wen-Hsien Huang[1], Chao-Chia Cheng[2]
[1]National Nano Device Laboratory, HSINCHU, Taiwan
[2]Chung Hua University, HSINCHU, Taiwan

6C - Photon Lithography & Mask Technology

Place : Room 201
Session Chairs: Yan Boradovsky and Günther Stangl

6C-1 **Increase of resolution by applying phase mask concept in EUV lithography**

10:00 Aura Nugrowati[1], Marieke Richard[2], Christophe Constancias[2], Silvania Pereira[1], Joseph Braat[1], Jean-Yves Robic[2]
[1]Delft University of Technology, DELFT, The Netherlands
[2]CEA-Leti Minatec, GRENOBLE, France

6C-2 **Polarimetry of illumiantion for 193-nm immersion lithography**

10 :20 Hiroshi Nomura
Toshiba Corp., YOKOHAMA, Japan

6C-3 **Using Optical Proximity Correction Techniques to Compensate for Flare in Extreme Ultraviolet Lithography**

10:40 Lawrence Melvin[1], Brian Ward[1], Daniel Ritter[1], Alan Myers[2], In sung Kim[3], Anne-Marie Goethals[4], Rik Jonckheere[4], Gian Francesco Lorusso[4]
[1]Synopsys, HILLSBORO, United States of America
[2]Intel, HILLSBORO, United States of America
[3]Samsung, SEOUL, South-Korea
[4]IMEC, LEUVEN, Belgium

6C-4 **Inspection of EUVL mask blank defects and patterned masks using EUV photoemission electron microscopy**

11 :00 Jingquan Lin[1], J Maul[2], N Weber[3], C Holfeld[4], M Merkel[3], G Schoenhense[2], U Kleineberg[1]
[1]University of Munich, GARCHING, Germany
[2]University of Mainz, MAINZ, Germany
[3]Focus-GmbH, HUENSTETTEN-KESSELBACH, Germany
[4]AMTC, DRESDEN, Germany

6C-5 **Manufacturing Lithography for 32nm Half-Pitch and Beyond**

11:20 Michael Lercel
SEMATECH / IBM, AUSTIN, TX, United States of America

11 :50 End of session

Lunch

7A - Microsystems & Their Fabrication II

Place : Audience
Session Chairs: Stefan Blunier and Urs Staufer

7A-1 **Topology Optimized Electrothermal Polysilicon Microgrippers**

13:00 Özlem Sardan, Peter Bøggild, Ole Sigmund, Kristian Mølhave
Technical University of Denmark DTU, COPENHAGEN, Denmark

7A-2 **Antireflective nanostructured microlenses**

13:20 Birgit Päivänranta[1], Pierre-Yves Baroni[2], Toralf Scharf[2], Wataru Nakagawa[2], Hans Peter Herzig[2], Markku Kuittinen[1]
[1]University of Joensuu, JOENSUU, Finland
[2]Institute of MicroTechnology, NEUCHÂTEL, Switzerland

7A-3 **Multi-Parameter POCT Device for Blood Diagnostic**

13 :40 Reinhold Jurischka, Christoph Blattert, Isam Tahhan, Andreas Schoth, Claas Müller, Holger Reinecke
University of Freiburg - IMTEK, FREIBURG, Germany

7A-4 **RF MEMS Capacitive Switch on Semi-Suspended CPW using Low-Loss HRS**

14 :00 Montserrat María Fernandez-Bolaños Badia[1], Julien Perruisseau-Carrier[2], Paolo Dainesi[3], Adrian Mihai Ionescu[3]
[1]EPFL, Electronics Laboratoy, LAUSANNE, Switzerland
[2]EPFL LEMA, LAUSANNE, Switzerland
[3]EPFL, LAUSANNE, Switzerland

7A-5 **Dynamic behavior of the tuning fork AFM probe**

14 :20 Dara Bayat, T. Akiyama, N.F. De Rooij, U. Staufer
University of Neuchatel, NEUCHATEL, Switzerland

7B - Nanoimprint Lithography and Technology III

Place : Room 101
Session Chairs: Alkaisi Maan and Wei Wu

7B-1 **Pressure and Resist Thickness Dependency of Resist Time Evolutions Profiles in Nanoimprint Lithography**

13 :00 Yoshihiko Hirai[1], Yuuki Onishi[2], Satoaki Tanabe[1], Mayuko Shibata[1], Takuya Iwasaki[2], Yasuroh Iriye[2]
[1]Osaka Pref. Univ., SAKAI, Japan
[2]Mizuho Inf. and Res. Institute, TOKYO, Japan

7B-2 **Determination of stress build-up during NIL process in triangular polymer structures**

13:20 Irene Fernandez-Cuesta[1], Xavier Borrisé[1], Aritz Retolaza[2], Santos Merino[2], David Mendels[3], Ole Hansen[4], Anders Kristensen[4], Francesc Perez-Murano[1]
[1]Centro Nacional de Microelectrónica -CNM, BELLATERRA, Spain
[2]Fundación TEKNIKER, EIBAR, Spain
[3]National Physical Laboratory, TEDDINGTON, United Kingdom
[4]Department of Micro and Nanotechnology, LYNGBY, Denmark

7B-3 **A study of concave grating fabricated by UV-nanoimprint lithography**

13:40 Yung-Pin Chen, Yuet-Ping Lee, Lon Alex Wang
National Taiwan University, TAIPEI, Taiwan

7B-4 **Nanoimprint Lithography for three-dimensional nanopatterning**

14:00 Clivia M Sotomayor Torres[1], N. Kehagias[1], V. Reboud[1], C Chansin[1], M. Zelsmann[2], C. Jeppesen[3], C. Schuster[4], M. Kubenz[4], F. Reuther[4], G. Gruetzner[4]
[1]University College Cork, CORK, Ireland
[2]LTM-CNRS, c/o CEA-LETI, GRENOBLE CEDEX 9, France
[3]Dept. Micro and Nanotechnology, Technica, KGS. LYNGBY, Denmark
[4]Micro resist technology GmbH, BERLIN, Germany

7C - Micro and Nanosystems for Biology III

Place : Room 201
Session Chairs: Winnie Svendsen and NN.

7C-1 **Artificial nanostructured biointerfaces**
13:00 Duncan Sutherland
University of Aarhus, AARHUS, Denmark

7C-2 **Design and fabrication of a micromechanical capacitive DNA sensor array**
13:30 Vasiliki Tsouti[1], Stavros Chatzandroulis[1], Dimitrios Goustouridis[1], Pascal Normand[1], Dimitrios Tsoukalas[2]
[1]NCSR „Demokritos„, ATHENS, Greece
[2]NTUA, Department of Applied Sciences, ATHENS, Greece

7C-3 **Optical readout system for DNA food pathogens detection with disposable RT-PCR SU-8 / glass chip**
13 :50 Rafal Walczak[1], Jan Dziuban[1], Bang Dang Duong[2], Jesus Ruoano-Lopez[3]
[1]Institute of Electron Technology, WARSAW, Poland
[2]Danish Technical University, AARHUS, Denmark
[3]Ikerlan, ARRASATE-MODRAGÓN, Spain

7C-4 **Plasma Patterning of Fluorescence-based Oxygen Sensors**
14:10 Volker Nock[1], Richard Blaikie[1], Tim David[2]
[1]MacDiarmid Institute, CHRISTCHURCH, New Zealand
[2]Centre for Bioengineering, CHRISTCHURCH, New Zealand

14 :40 End of session

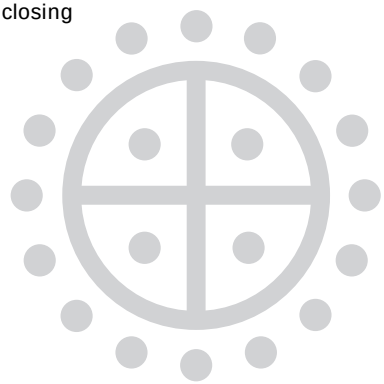
PL4 - Plenary session IV

Place : Audience
Session Chairs: John Randall and C. Vieu

PL4-1 **Trends in MicroRobotics**
15:00 Bradley Nelson
ETH Zurich, Switzerland

PL4-2 **Recent Advances in NEMS**
15:45 Michael Roukes
Caltech / Kavli Nanoscience Institute, CALTECH, United States of America

16:30 Conference closing



Poster session

P-EIBL	**Electron and Ion Beam Lithography**
P-ML/MK	**Maskless Lithography / Mask Technology**
P-BIO	**Micro- and Nano- Systems for Biology**
P-MST	**Microsystems and their Fabrication**
P-MDEV	**Nanodevices**
P-NIL	**Nanoimprint Lithography**
P-NSC	**Nanoscale Engineering and Fabrication**
P-PAT	**Pattern Transfer**
P-PHO	**Photon Lithography**
P-DIAG	**Process Diagnosys and Control**
P-RES	**Resist and Resist Processing**
P-RF	**RF-MEMS/NEMS**

Poster session

Monday 24th September

16:00-17:00 Poster Session I
17:00-18:00 Poster Session II

Electron and Ion Beam Lithography

P-EIBL-1 **Surface chemistry and bio-functionalization of FIB and EBL defined structures studied by X-ray photo emission and mirror electron microscopy**
Anders Mikkelsen, Sara Ghatnekar-Nilsson, A. A. Zhakarov, Emelie Hilner, Lars Montelius, Jesper Andersen,
Lund University, LUND, Sweden

P-EIBL-2 **Directed electroless deposition of sub 50 nm interconnects on e-beam patterned self-assembled-monolayers**
Nick Fishelson, Liron Marom, Alexander Tsukernik, Alexandra Inberg, Yosi Shacham-Diamand,
Tel-Aviv University, TEL-AVIV, Israel

P-EIBL-3 **Lamellar grating used as the splitter grating in the Soft X-ray laser Mach-Zehnder interferometer**
Xin Tan,
ANHUI HEFEI, China

P-EIBL-4 **Electron beam lithography of HSQ/PMMA bilayer resists for negative tone lift-off process**
Haifang Yang[1], Aizi Jin[2], Qaing Luo[2], Junjie Li[2], Changzhi Gu[2], Zheng Cui[3],
BEIJING, China,
[2]Institute of Physics, BEIJING, China,
[3]Rutherford Appleton Laboratory, CHILTON, United Kingdom

P-EIBL-5 **The Influence of Atomic Hydrogen on Focused Ion Beam induced Tungsten Deposition**
Andreas Steiger-Thirsfeld, Alois Lugstein, Emmerich Bertagnolli,
Vienna University of Technology, VIENNA, Austria

P-EIBL-6 **Patterning of Si substrates for controlled epitaxial Ge/Si(100) island deposition**
Monica Bollani[1], Roman Sordan[2], Giovanni Isella[2], Davide Colombo[3], Johann Osmond[2],

Hans Von Känel[2],
[1]CNISM-CNR, COMO, Italy,
[2]L-NESS Politecnico of Milano, COMO, Italy,
[3]Universita' Milano Bicocca, MILANO, Italy

P-EIBL-7 **Microfabricated SERS-Arrays with sharp-edged metallic nanostructures**
Uwe Huebner[1], Richard Boucher[1], Henrik Schneidewind[1], Dana Cialla[2], Juergen Popp[1],
[1]Institute of Photonic Technology (IPHT), JENA, Germany,
[2]Institute of Physical Chemistry, JENA, Germany

P-EIBL-8 **Periodic Sub-wavelength Electron Beam Lithography Defined Photonic Crystals for Mode Control in Semiconductor Lasers**
Guy Derose, Lin Zhu, Joyce Poon, Amnon Yariv, Axel Scherer,
California Institute of Technology, PASADENA, CALIFORNIA, United States of America

P-EIBL-9 **E-beam lithography of catalyst patterns for carbon nanotube growth on insulating substrates**
Michael Häffner, Monika Fleischer, Dieter Paul Kern,
Institute of Applied Physics, TÜBINGEN, Germany

P-EIBL-10 **Determination of best focus and optimum dose for variable shaped beam systems by applying the isofocal dose method**
Katja Keil,
Fraunhofer CNT, DRESDEN, Germany

P-EIBL-11 **Progress Update Towards Fabricating EUVL Mask Blanks**
Rajul Randive,
Veeco Instruments, ALBANY, United States of America

P-EIBL-12 **Hybrid EB-writing technique with 100 kV-SB and 50 kV-VSB writers: use of the former for outlines and the latter for bodies after pattern data splitting**
Hiroshi Fujita, Mikio Ishikawa, Masashi Sakaki, Naoko Kuwahara, Tadahiko Takikawa, Hisatake Sano, Morihisa Hoga, Naoya Hayashi,
Dai Nippon Printing Co., Ltd., KASHIWA-SHI, CHIBA-KEN, Japan

P-EIBL-13 **Sub-40nm Ebeam / DUV Hybrid Lithography for Advanced Interconnections**
Angélique Rascle, Thibaut David,
CEA-LETI / MINATEC, GRENOBLE, France

P-EIBL-14 **New approach of nano-patterning for localized semiconductor nanostructures**
Luc Le Gratiet[1], Noelle Gogneau[1], Edmond Cambril[1], Anthony Martinez[1], Abderrahim Ramdane[1], Jerôme Martin[2], Wui Goh[3], Abdallah Ougazzaden[3], Isabelle Sagnes[1],
[1]LPN-UPR20 CNRS, MARCOUSSIS, France, [2]LMOP UMR CNRS 7132, METZ, France, [3]Georgia Institute of Technology, METZ, France

P-EIBL-15 **Ion- and electron-beam induced deposition of Pt, W, and Co: composition and electrical transport properties**
Jose Maria De Teresa[1], Amalio Fernández-Pacheco[2], Rosa Córdoba[2], Oscar Montero[2], Ricardo Ibarra[2],
[1]CSIC, ZARAGOZA, Spain, [2]University of Zaragoza, ZARAGOZA, Spain

P-EIBL-16 **Improvements to the alignment process in a commercial vector scan electron beam lithography tool**
Kevin Docherty, Stephen Thoms, Phil Dobson, John Weaver,
University of Glasgow, GLASGOW, United Kingdom

P-EIBL-17 **Towards 2-10 nm electron-beam lithography: a quantitative approach**
Vadim Sidorkin, Arnold Van Run, Anja Van Langen-Suurling, Emile Van der Drift,
Delft University of Technology, DELFT, The Netherlands

P-EIBL-18 **High resolution electron beam lithography of PMGI using solvent developer**
Bo Cui, Shiyong Zhao, Teodor Veres,
IMI -- National Research Council, BOUCHERVILLE, QC, Canada

P-EIBL-19 **Improved electrical insulation of FIB-patterned nanogap electrodes by Iodine and HF chemical assistance**
Gian Carlo Gazzadi, Elena Angeli, Stefano Frabboni, Paolo Facci,
CNR - INFM S3, MODENA, Italy

P-EIBL-20 **TFT-LCD Panel Tester Using Low Voltage Microcolumns**
Ho Seob Kim[1], D. W. Kim[1], Y. C. Kim[1], S. J. Ahn[1], S. S. Park[2],
K. W. Park[2], N. W. Hwang[2], S. W Jin[2],
[1]Sun Moon University, ASAN CITY, South-Korea,
[2]CEBT Co., ASAN CITY, South-Korea

P-EIBL-21 **Improvement of high resolution lithography capabilities by using amorphous carbon hard masks**
Sebastien Pauliac-Vaujour, Stefan Landis, Pierre Brianceau, Julien Chiaroni, Olivier Faynot,
CEA/LETI - Minatec, GRENOBLE, France

P-EIBL-22 **LEEPL: The Potencial to Succeed Optical Lithography beyond 32nm/hp**
Takao Utsumi,
Nanolith LLC, CHIYODA-KU, TOKYO, Japan

P-EIBL-23 **ORCHID Aberration Measurement Tool for Corrected Lens Systems**
Hans Koops[1], Sergey Babin[2], M. Machin[2], A. Martynov[2],
[1]HaWilKo PSS, OBER-RAMSTADT, Germany,
[2]aBeamTechnologies, CASTRO VALLEY CA, United States of America,

Maskless Lithography / Mask Technology

P-ML/MK-1 **Control of duty ratio in waveguide gratings using a Near-Field Holographic lithography system with a variable aperture**
Jun-Ho Sung,
Inha University, INCHON, South-Korea

P-ML/MK-2 **Application of TiO2 film as the capping layer to extend the life time of Mo/Si multi-layer mirror of a extreme ultra violet (EUV) mask**
J.Y. Lee[1], S.M. Heo[1], J.T. Lim[2],
[1]Samsung Electronics, YONGIN, South-Korea,
[2]Sungkyunkwan University, YONGIN, South-Korea

P-ML/MK-3 **Optical proximity correction in SLM-based maskless lithography**
Xiaowei Guo[1], Jinglei Du[2], Chunlei Du[3],
, CHENGDU, China,
[2]Sichuan university, CHENGDU, China,
[3]CAS, CHENGDU, China

P-ML/MK-4 **Maskless Interference Lithography Based on SPP and Waveguide Technology**
Liang Fang[1], Jinglei Du[1], Fuhua Gao[1], Xiangang Luo[2], Chunlei Du[2], Yongkang Guo[1],
[1]*Sichuan University, CHENGDU, China,*
[2]*Institute of Optics and Electronics, CAS, CHENGDU, China*

P-ML/MK-5 **Inverse problem of ion etching for CHARPAN tool**
Elmar Platzgummer[1], Hans Loeschner[2], Stephan Edel-Kapl[1], Alexander Svintsov[3], Sergey Zaitsev[3],
[1]*IMS nanofabrication GmbH, VIENNA, Austria,*
[2]*IMS Nanofabrication, VIENNA, Austria,*
[3]*IMT RAS, CHERNOGOLOVKA, MOSC. DISTR., Russia*

P-ML/MK-6 **Approaches to Nanopatterning Using Heated AFM Cantilever Probes**
Clifford Henderson[1], Yueming Hua[1], William P. King[2],
[1]*Georgia Institute of Technology, ATLANTA, United States of America,*
[2]*University of Illinois, URBANA, IL 61801, United States of America*

P-ML/MK-7 **3-dimensional Projection Mask-Less Patterning (PMLP) of microlenses and cones: modelling and monitoring of ion multi-beam kinetic sputtering in GaAs**
Falco Van Delft[1], Emile Naburgh[1], Elmar Platzgummer[2], Hans Loeschner[2],
[1]*Philips Research Europe, EINDHOVEN, The Netherlands,*
[2]*IMS Nanofabrication, VIENNA, Austria*

P-ML/MK-8 **Secondary Electron Detection for Distributed Axis Electron Beam Systems**
Sayaka Tanimoto[1], Daniel Pickard[2], Chris Kenney[3], Fabian Pease[3],
[1]*Hitachi, Ltd., KOKUBUNJI, Japan,*
[2]*National University of Singapore, SINGAPORE, Singapore,*
[3]*Stanford University, STANFORD, United States of America*

Micro- and Nano- Systems for Biology

P-BIO-1 **Piezoresistive sensitivity of MEMS-based liquid dispensing system with built-in force sensors**
Maryna Lishchynska[1], Thierry Leichle[2], Liviu Nicu[2],

[1]*Tyndall National Institute, CORK, Ireland,*
[2]*LAAS-CNRS, TOULOUSE, France*

P-BIO-2 **Morphology of Nanoparticle-Derived Nanostructures and Its Effect on Cytotoxicity**
Fu-Hsiang Ko,
National Chiao Tung University, HSINCHU, Taiwan

P-BIO-3 **Development of On-chip Metal-semiconductor-metal Photodetectors for the Characterization of On-chip Transesterification Reaction**
Fu-Hsiang Ko,
National Chiao Tung University, HSINCHU, Taiwan

P-BIO-4 **Micro and nano structured roughness of PDMS substrates of Super-Hydrophobic Surfaces**
Barbara Cortese, MM Manca, V I Viola, D S D'amone, G Gigli,
University of Lecce, LECCE, Italy

P-BIO-5 **A microfluidic cellular 'Iron Maiden'**
Kris Seunarine,
University of Glasgow, GLASGOW, United Kingdom

P-BIO-6 **APEX protocol implementation on a Lab-on-a-Chip for SNPs detection**
Simone Luigi Marasso,
Politecnico di Torino, TORINO, Italy

P-BIO-7 **Development of a 'microfluidic wheastone bridge' device for electrokinetic investigations using optimized Glass-PDMS-Glass technology**
Adrien Plecis, Yong Chen,
CNRS, MARCOUSSIS, France

P-BIO-8 **Measuring more than mass: Effect of elastic properties of adsorbed biolayers on nanomechanical sensors**
Daniel Ramos, Montserrat Calleja, Johann Mertens, Javier Tamayo,
IMM-CNM-CSIC, MADRID, Spain

P-BIO-9 **Micro-Contact Printing of oligonucleotides for biochip fabrication: the role of Poly(dimethylsiloxane) contamination**
Christophe Thibault[1], Childérick Séverac[1], Véronique Le Berre[2], Emmanuelle Trévisiol[2], François Jean-Marie[2], Christophe Vieu[1],
[1]*LAAS-CNRS, TOULOUSE, France,*
[2]*LBB, CNRS-INSA, TOULOUSE, France*

P-BIO-10 **Microfluidic devices for optical determination of ethanol concentration**
Yong Chen[1], L Lei[1], I.L Mattos[2],
[1]Ecole Normale Supérieure, PARIS, France,
[2]Universidade Federal de Pernambuco, RECIFE, Brazil

P-BIO-11 **Polyimide microcantilever surface stress biosensors using low cost, rapidly interchangeable springloaded micro-probe connections**
Robert Ibbotson,
Rutherford Appleton Laboratory, CHILTON, DIDCOT, United Kingdom

P-BIO-13 **Bead-based protein microarrays realized through electrostatic self-assembly of carboxylated beads**
Venkataragavalu Sivagnanam, A. Sayah, Martin Gijs,
Ecole Polytechnique Fédérale de Lausanne, LAUSANNE, Switzerland

P-BIO-14 **Comparison of Several Methods for Chemical Modification and Micropatterning of the SU-8 Photoresist**
Gabriela Blagoi, Stephan Keller, Martin Dufva, Anja Boisen, Mogens Havsteen Jakobsen,
DTU, LYNGBY, Denmark

P-BIO-15 **Genotyping Single Nucleotide Polymorhisms based on Pinched Flow Fractionation Devices**
Asger Vig Larsen[1], Lena Poulsen[1], Henrik Birgens[2], Martin Dufva[3], Anders Kristensen[1],
[1]DTU – Technical University of Denmark, LYNGBY, Denmark,
[2]Department of Haematology, HERLEV, Denmark,
[3]Department of Micro and Nanotechnology, LYNGBY, Denmark

P-BIO-16 **Determination of Particle Distributions in Microfluidic Systems under the Influence of Electric Fields**
Andreas Heeren, Monika Fleischer, Dieter P. Kern,
University of Tuebingen, TUEBINGEN, Germany

P-BIO-17 **True Label-Free Detection from a Designed Array of Cantilevers**
Sara Ghatnekar-Nilsson[1], Jeremy Graham[2], Robert Hull[2], Lars Montelius[1],
[1]Lund University, LUND, Sweden,
[2]University of Virginia, CHARLOTTESVILLE, VA, United States of America

P-BIO-18 **Fabrication of nano-gold island with m-spacing using 2.5 dimensional PDMS stamps**
Wolfgang Schwinger[1], Elisabeth Lausecker[1], Iris Bergmair[1], Martyna Grydlik[2], Thomas Fromherz[2], Christine Hasenfuß[2], Rainer Schöftner[1],
[1]Profactor GmbH, STEYR-GLEINK, Austria,
[2]Johannes Kepler University, LINZ, Austria

P-BIO-19 **Nanostructured substrates for high density protein arrays**
Celestino Padeste[1], Frank Zoller[1], Yasin Ekinci[2], Harun Solak[1], Andreas Engel[3],
[1]Paul Scherrer Institut, VILLIGEN, PSI, Switzerland,
[2]ETH, ZÜRICH, Switzerland,
[3]University of Basel, BASEL, Switzerland

P-BIO-20 **Nanostructured (bio)-functional polymer brushes by EUV-radiation induced polymer grafting**
Celestino Padeste, Patrick Farquet, Harun Solak,
Paul Scherrer Institut, VILLIGEN, PSI, Switzerland

P-BIO-21 **A multiwell micromechanical cantilever array reader for biotechnology**
Renhua Zhang[1], Suman Cherian[2], Robert Cain[3], S. Lorenzoni[2],
Andreas Best[1], E. Macis[2], Roberto Raiteri[2], Ruediger Berger[1],
[1]Max Planck Institute for Polymer Researc, MAINZ, Germany,
[2]University of Genova, GENOVA, Italy,
[3]Protiveris Inc, ROCKVILLE, United States of America

P-BIO-22 **Integrated-Fiber-Probe for Optical 3D Trapping and Manipulation**
Carlo Liberale,
, CATANZARO, Italy

P-BIO-23 **Development of atto-vial based antibody arrays**
Sara Ghatnekar-Nilsson, Peter Ellmark, Christer Wingren, Linda Dexlin, Lars Montelius, Carl Borrebaeck,
Lund University, LUND, Sweden

P-BIO-24 **Integration of sub-5 nm nanopores for electrical biological macromolecule translocation detection : A New Way**
Jacques Gierak[1], Ali Madouri[1], Anne Laure Biance[2], Loïc Auvray[3],
[1]LPN-CNRS, MARCOUSSIS, France,

[2]*Université Marne la Vallée, MARNE LA VALLEE, France,*
[3]*Université d'Evry, EVRY, France*

P-BIO-25 **Manipulation of amyloid peptide nanowires using dielectrophoresis and microfluidics**
Castillo Jaime[1], Giorgio Prosperi[2], Maria Dimaki[1], Manolis Kasotakis[3],
Lihi Adler-Abramovich[4], Anna Mitraki[3], Ehud Gazit[4], Winnie Svendsen[1],
[1]*Technical University of Denmark, LYNGBY, Denmark,*
[2]*Politecnico University of Turin, TURIN, Italy,*
[3]*University of Crete, HERAKLION, Greece,*
[4]*University of Tel-Aviv, TEL-AVIV, Israel*

P-BIO-26 **Modelling and Optical Measurement Verification of Novel Simplified Microreactors for Dilution Gradient Generation**
Abdulla Yusuf Hayat[1], R.W. Barber[2], P.R Fielden[1], N.J. Goddard[1], B.J. Treves Brown[1],
[1]*University of Manchester, MANCHESTER, United Kingdom,*
[2]*STFC Daresbury Laboratory, WARRINGTON, United Kingdom*

P-BIO-27 **BIOXTAS – an automated microfluidic chip for studies of biological macromolecules**
Detlef Snakenborg[1], Katrine N. Toft[2], Søren S. Nielsen[1], Mads G. Jeppesen[2],
Lise Arleth[2], Jes K. Jacobsen[3], Bente Vestergaard[2], Jörg P. Kutter[1],
[1]*Technical University of Denmark, KGS. LYNGBY, Denmark,*
[2]*University of Copenhagen, COPENHAGEN, Denmark,*
[3]*Novo Nordisk, MÅLØV, Denmark*

P-BIO-28 **Fabrication of hybrid 3D stamp for producing polymer biochips by nanoimprint lithography**
Lasse Højlund Thamdrup[1], Fredrik Persson[1], Anna Klukowska[2],
Anders Kristensen[1],
[1]*Technical University of Denmark (DTU), KONGENS LYNGBY, Denmark,*
[2]*Micro resist technology GmbH, BERLIN, Germany*

P-BIO-29 **A Microfluidic Chip for Sorting of Chromosomes**
Casper Hyttel Clausen,
, KGS. LYNGBY, Denmark

P-BIO-30 **Femto mole (fmol) myoglobin Raman detection from plasmonic nanostructures**
Gobind DAS[1], G. DAS[1], F. Mecarini[1], M. Prascuiolu[2], F. De Angelis[1],
C. Liberale[1], E. Di Fabrizio[1],
, CATANZARO, Italy,
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P-BIO-31 **Manufacturing substrate nano-grooves for studying cell alignment and adhesion**
Falco Van Delft[1], Eric van den Heuvel[1], Walter Loesberg[2], J. te Riet[2], P. Schon[2], C.G. Figdor[2], S. Speller[2], J.J.W.A. van Loon[3], Frank Walboomers[2], John Jansen[2],
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[2]Radboud University, NIJMEGEN, The Netherlands,
[3]DESC OCB-ACTA – UvA and VU, AMSTERDAM, The Netherlands

P-BIO-32 **Thermo-resistance based micro-calorimeter for continuous chemical enthalpy measurements**
Guilhem Velve Casquillas[1], M Le berre[2], F Bertholle[1], S Meance[1],
L Malaquin[1], Y Chen[1],
[1]CNRS LPN, MARCOUSSIS, France,
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P-BIO-33 **Multireflection based on chip label free molecules detection**
Laurent Billot,
LPN, MARCOUSSIS, France

P-BIO-34 **Cell Proliferation Assay on Plasma Activated SU-8**
Marc Hennemeyer[1], Sandra Kerstan[2], Katrin Schürzinger[2],
Ferdinand Walther[1], Alexander M. Gigler[1], Robert W. Stark[1],
[1]University of Munich – L M U, MUNICH, Germany,
[2]German Heart Centre, TU Munich, MUNICH, Germany

P-BIO-35 **Integration of microfluidics on Surface Acoustic Wave biosensors for multi-sensing purposes**
Konstantinos Mitsakakis[1], Angeliki Tserepi[2], Marilena Vlahopoulou[2],
Electra Gizeli[1],
[1]University of Crete, HERAKLION,CRETE, Greece,
[2]I.M.E.L., N.C.S.R.-'Demokritos„, AG. PARASKEVI, ATHENS, Greece

P-BIO-36 **Separation of white blood cells from a whole blood sample using pinched flow**
Maria Dimaki, Fridolin Okkels, Nikolaj O. Christiansen, Martin G. Hansen, Simon Levinsen, Karsten B. Andersen, Pranjul Shah, Jaime Castillo, Casper H. Clausen, Jacob M. Lange, Linda B. Jensen, Winnie Svendsen,
Technical University of Denmark, KGS. LYNGBY, Denmark

P-BIO-37 **The Physics of DNA in Nanochannels**
Walter Reisner[1], Niels Larsen[2], Henrik Flyvbjerg[2], Jonas O. Tegenfeldt[3], Anders Kristensen[1],
[1]Danish Technical University, LYNGBY, Denmark,
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P-BIO-38 **Fabrication of Silicon dioxide nanochannel arrays without nanolithography for single DNA detection**
Beomjoon Kim,
The University of Tokyo/IIS, TOKYO, Japan

P-BIO-39 **Nano-interdigtated electrodes for detection of dopamine**
Lars Henrik Dæhli Skjolding[1], Christer Spegel[1], Jenny Emneus[2], Lars Montelius[1],
[1]Lund University, LUND, Sweden,
[2]MIC-DTU, LYNGBY, Denmark

P-BIO-40 **Measurement of a gauge factor of a carbon fiber and its application to sensors**
Jikwan Kim,
Chonnam national university, GWANGJU, South-Korea

P-BIO-41 **Optimization of PDMS substrates for studying cellular adhesion and motility**
David Fuard[1], Tzvetelina Tzvetkova-Chevolleau[2], Patrick Schiavone[1],
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P-BIO-42 **Step-and-Repeat Maskless Lithography for Ultra Large Scale DNA chips (ULS-**

DNA chips) for High Throughput Genomics
Omar Negrete,
CNTech, MADISON, United States of America

P-BIO-43 **Surface Chemistry in Micro and Nanotechnology**
Mogens Havsteen Jakobsen[1], Gabriela Blagoi[2], Haukur Gudnason[2], Stephan Keller[2], Jacob Moresco Lange[2],
[1]DTU – Technical University of Denmark, LYNGBY, Denmark,
[2]MIC-Department of Micro and Nanotechnolo, LYNGBY, Denmark

P-BIO-44 **Standard bio-opto-fluidic chip technology using channel only process**
Franck Chollet, Lai-Fun Ho,
Nanyang Technological University, SINGAPORE, Singapore

P-BIO-45 **Electrical Characterization of Cell Behaviour on Microelectrode**
Sungbo Cho,
Fraunhofer IBMT, ST. INGBERT, Germany

Microsystems and their Fabrication

P-MST-1 **Miniaturized PMMA ball-valve micropump with cylindrical electromagnetic actuator**
Meng Shen[1], Christophe Yamahata[2], Martinus Gijs[1],
[1]EPFL, LAUSANNE, Switzerland,
[2]University of Tokyo, TOKYO, Japan

P-MST-2 **A simple and efficient method for reducing surface roughness of polymer microstructures**
Monica Brivio[1], Gerardo Perozziello[1], Giuseppina Simone[2], Anders Wolff[1],
[1]Technical University of Denmark (DTU), LYNGBY, Denmark,
[2]University of Rome, „Tor Vergata„, ROME, Italy

P-MST-3 **Performance prediction of polysilicon electrothermal microactuators using geometrical variation analysis**
Mahnaz Shamshirsaz[1], Mohsen Gheisarieha[2], Mohammad Maroufi[1],
[1]Amirkabir University of Technology, TEHRAN, Iran,
[2]Sharif university of Technology, TEHRAN, Iran

P-MST-4 **Optical lithography onto inside surfaces of small-diameter pipes**
Toshiyuki Horiuchi, Masahiro Katayama, Yuusuke Watanabe, Katsuyuki Fujita, Takashi Yasuda,
Tokyo Denki University, TOKYO, Japan

P-MST-5 **Theoretical and Experimental Investigation on the Capturing Behaviour of a Novel Microfluidic Magnetic Bead Separator for High-Throughput Applications**
Minqiang Bu,
Technical University of Denmark, KGS. LYNGBY, Denmark

P-MST-6 **Direct Al-Al contact using low temperature wafer bonding for integrating MEMS and CMOS devices**
Huamao Lin,
The University of Edinburgh, EDINBURGH, United Kingdom

P-MST-7 **Influence of Manufacturing Irregularities on a 3-D MEMS Gyroscope**
Stefan Blunier, Jürg Dual,
ETH Zurich, ZURICH, Switzerland

P-MST-8 **Patterned thin metal films on a Si photonic crystal for efficient IR emission**
Nikos Papanikolaou, Ioannis Raptis,
Institute of Microelectronics, ATHENS, Greece

P-MST-9 **Fabrication of Optical Grayscale Masks for Tapered Microfluidic Devices**
Volker Nock[1], Richard Blaikie[1], Tim David[2],
[1]MacDiarmid Institute, CHRISTCHURCH, New Zealand,
[2]Centre for Bioengineering, CHRISTCHURCH, New Zealand

P-MST-10 **Design, Fabrication, and Analysis of Microporous Wicking Structure**
Lawrence Melvin[1], Mark Weislogel[2], Yongkang Chen[2], Ryan Jenson[2],
Scott Dhuey[3], Paul Nealey[3],
[1]Synopsys, HILLSBORO, United States of America,
[2]Porltand State University, PORTLAND, United States of America,
[3]University of Wisconsin, MADISON, United States of America

P-MST-11 **Fabrication of HF Bulk Acoustic Silicon Disk Resonator for Liquid Operation**
Jan Hales, Zachary Davis, Meng Tang, Anja Boisen,

DTU - Technical University of Denmark, KGS. LYNGBY, Denmark

P-MST-12 **Investigation of Electroosmotic Flow of Polymer Microfluidic Devices**
Ingrid Hoek[1], Febly Tho[1], W. Mike Arnold[2],
[1]Industrial Research Limited, LOWER HUTT, New Zealand,
[2]MacDiarmid Institute Victoria University, WELLINGTON, New Zealand

P-MST-13 **Development of Rapid Mask Fabrication Technology for Micro-abrasive Jet Machining**
Seungpyo Lee[1], In Hwan Lee[1], Tae Jo Ko[2], Hyun-Wook Kang[3], Dong-Woo Cho[3],
[1]Chungbuk National Univ., CHEONGJU, South-Korea,
[2]Yeungnam Univ., KYUNGSAN, South-Korea,
[3]POSTECH, POHANG, South-Korea

P-MST-14 **MEMS Mirrors for the use in Resonant Cavity Enhanced Detectors**
Niels Quack, Stefan Blunier, Jurg Dual, Martin Arnold, Ferdinand Felder,
Christian Ebneter, Mohamed Rahim, Hans Zogg,
ETH Zurich, ZURICH, Switzerland

P-MST-15 **Reactive Ion Etching of Low-Loss Channel Waveguides in Al2O3 and Y2O3 Layers**
Feridun Ay, Jonathan Bradley, Kerstin Wörhoff, Markus Pollnau,
University of Twente, ENSCHEDE, The Netherlands

P-MST-16 **A new type of a MEMS pressure sensor with mechanical micro-switch array**
Changsin Park, youngsu Choi, Dongweon Lee,
Chonnam National University, GWANG-JU, South-Korea

P-MST-17 **Mechanical Properties of thin Si-based membrane windows deteriorated by electron beam penetration**
Masanori Yamaguchi[1], Yohei Yamada[2], Yoshiki Goto[2], Mitsuhiro Shikida[3], Kazuo Sato[1], Jun Murase[2],
[1]Nagoya University, NAGOYA, Japan,
[2]Ushio Inc., HIMEJI, Japan,
[3]Eco-Topia Science Institute, NAGOYA, Japan

P-MST-18 **Opto-thermal actuation in microcantilevers made of double polymer layer**

Cristina Martin[1], Andreu Llobera[1], Anja Voigt[2], Gabi Gruetzner[2],
Gabriel Abadal[3], Francesc Perez-Murano[1],
[1]CNM-IMB-CSIC, BARCELONA, Spain,
[2]Microresist technology GmbH, BERLIN, Germany,
[3]UAB, BARCELONA, Spain

P-MST-19 **Fabrication of miniaturized Schottky emitter by wire electrical discharge method (WEDM)**
Anand Kumar Dokania, Marco Pelle, Pieter Kruit,
Delft University of Technology, DELFT, The Netherlands

P-MST-20 **A Novel Pressure Sensor with a PDMS Diaphragm**
Young Soo Choi,
Chonnam National University, GWANG JU, South-Korea

P-MST-21 **In-situ fabrication of a poly-acrylamide membrane in a microfluidic channel**
Jean-Baptiste Orhan, Ruben Knaack, Virendra Kumar Parashar,
Martinus Gijs,
EPFL, LAUSANNE, Switzerland

P-MST-22 **Gas Chromatographic micro-column using polydimethylsiloxane as structural and functional material**
Antonia Malaenou, Maria-Elena Vlachopoulou, Roubini Triantafyllopoulou, Aggeliki Tserepi, Christos Tsamis, Stavros Chatzandroulis,
„NCSR„ DEMOKRITOS, ATHENS, Greece

P-MST-23 **Tailored fabrication of optical interconnection micro-lenses using micro ink-jetting technique**
Hyun-Shik Lee[1], Shinmo An[1], Keum Soo Jeon[2], Insu Park[2], Seoung Gol Lee[1],
Beom Hoan O[1], Se Geon Park[1], El Hang Lee[1],
[1]Inha University, INCHEON, South-Korea,
[2]Doosan Corporation Electro-Materials BG, KYOUNGKI-DO, South-Korea

P-MST-24 **Fabrication of mems bridge for explosive detection**
Anders Greve[1], J. H. Hales[1], D. Yi[2], L. Senesac[2], T. Thundat[2], Anja Boisen[1],
[1]Department of Micro and Nanotechnology, LYNGBY, Denmark,
[2]Oak Ridge National Laboratory, OAK RIDGE, United States of America

P-MST-25 **Field-effect transistors with thin ZnO as active layer for gas sensor applications**
Filippos Farmakis[1], T Speliotis[1], K.P. Alexandrou[1], C. Tsamis[1],
M. Kompitsas[2], I. Fasaki[2], P. Jedrasic[3], G. Petersson[3], B. Nilsson[3],
[1]NCSR Demokritos, ATHENS, Greece,
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P-MST-26 **Stencil Lithography on Flexible Polymer Substrates**
Katrin Sidler,
EPFL, LAUSANNE, Switzerland

P-MST-27 **Monolithic Silicon Optocoupler Engineering for Advanced Sensing Applications**
Konstantinos Misiakos, Ioannis Raptis, Eleni Makarona, Maria Kitsara,
NCSR 'Demokritos', AG. PARASKEVI, ATTIKIS, Greece

P-MST-28 **Patterning on Non-planar Substrates by Combining Thermoforming and Nanoimprint Technologies**
Jer-Haur Chang, Yuet-Ping Lee, Yung-Pin Chen, Lon Alex Wang,
National Taiwan University, TAIPEI, Taiwan

P-MST-29 **Diffraction supported creation of artificial ultra-hydrophobic micro and nano structures**
Olaf Mertsch, Arne Schleunitz, Antje Walter, Ivo Rudolph, Daniel Schondelmaier, Bernd Loechel,
BESSY GmbH, BERLIN, Germany

P-MST-30 **Deep plasma etching as a mass production method for polymeric microfluidics fabrication**
Nikolaos Vourdas, K. Kontakis, A. Tserepi, E. Gogolides,
Institute of Microelectronic, ATHENS, Greece

P-MST-31 **Real-time gripping detection for a mechanically actuated microgripper**
Marius Blideran[1], Monika Fleischer[1], Francois Grauvogel[2], Karsten Löffler[2], Matthias Langer[2], Dieter Kern[1],
[1]University of Tübingen, TÜBINGEN, Germany,
[2]University of Ulm, ULM, Germany

P-MST-32 **Static contact micro four-point probes with <11 nm positioning repeatability**

Dirch Petersen[1], Ole Hansen[1], Torben Hansen[1], Peter Petersen[2], Peter Bøggild[1],
[1]*Technical University of Denmark, KGS. LYNGBY, Denmark,*
[2]*Capres A/S, KGS. LYNGBY, Denmark*

P-MST-33 **Fabrication of SU 8 3000 microfluidic dielectrophoretic pump by low temperature adhesive bonding**
Roman Holly, Miroslav Mikolasek, Wolfgang Hilber, Kurt Hingerl,
Johannes Kepler University, LINZ, Austria

P-MST-34 **Crystalline silicon cantilevers for piezoresistive detection of biomolecular forces**
Guillermo Villanueva[1], J.A. Plaza[2], J. Montserrat[2], F. Perez-Murano[2], J. Bausells[2],
[1]*Ecole Politechnique Fédérale de Lausanne, LAUSANNE, Switzerland,*
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P-MST-35 **Tactile Pressure Sensors using Strained Carbon Nanotube Networks Formed on Pre-stretched Elastomer Substrates**
Seung-Beck Lee,
Hanyang University, SEOUL, South-Korea

P-MST-36 **A micromagnetoflowcell for microfluidic measurements**
Philip Prewett,
University of Birmingham, BIRMINGHAM, United Kingdom

P-MST-37 **Micromechanical Hz to MHz frequency up-converter integrated in a standard CMOS-0.35um technology for energy scavenging applications**
Gabriel Abadal[1], Gabriel Abadal[1], Gonzalo Murillo[1], Jordi Teva[1], Francesc Torres[1], Joan Lluis López[1], Arantxa Uranga[1], Jaume Esteve[2], Francesc Pérez-Murano[2], Núria Barniol[1],
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P-MST-38 **A novel design of a comb-drive actuator with large displacements**
Dong-Weon Lee[1], Xing Chen[2], Jun Ding[2],
GWANGJU, South-Korea,
[2]*Chonnam National University, GWANGJU, South-Korea*

P-MST-39 **Optimization of a Novel Micro-Opto-X ray Imaging Lens**
Philip Prewett,
University of Birmingham, BIRMINGHAM, United Kingdom

P-MST-40 **Revised Fabrication Process for Micro-Fluxgate-Magnetometers: Usage of Electrodepositable Photoresist**
Maren Ramona Kirchhoff, Jens Güttler, Andreas Waldschik, Marco Feldmann, Stephanus Büttgenbach,
TU Braunschweig, BRAUNSCHWEIG, Germany

P-MST-41 **Silicon nitride micro / nano mechanical devices with integrated strain gauge readout**
Zachary Davis,
Technical University of Denmark, LYNGBY, Denmark

P-MST-42 **Cantilever Pre-deflection Control of Massively Parallel Arrays**
Yanko Sarov,
Univ. of Kassel, KASSEL, Germany

P-MST-43 **SPICE simulations of self-actuated piezoresistive cantilever arrays**
Andreas Frank[1], Teodor Gotszalk[2], Tzvetan Ivanov[1], Jens Zöllner[1], Ivo W. Rangelow[1], Michal Swiatkowski[2], Nikolay Nikolov[3], Michael Zier[4], Bernd Schmidt[4],
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[2]TU-Wroclaw, WROCLAW, Poland,
[3]Microsystems, VARNA, Bulgaria,
[4]FZR, DRESDEN, Germany

P-MST-44 **Fabrication of Magnetic Cantilevers using a Polymer Composite**
Stijn Van Pelt[1], Stephan Keller[2], Gabriela Blagoi[2], Anja Boisen[2], Mikkel Fougt Hansen[2],
[1]Technical University of Eindhoven (TU/e), EINDHOVEN, The Netherlands,
[2]Technical University of Denmark, LYNGBY, Denmark

P-MST-46 **Nanostructured Oxides on Porous Silicon Microhotplates for NH3 Sensing**
Roubini Triantafyllopoulou[1], Xavi Illa[2], Olga Casals[2], Christos Tsamis[1], Albert Romano-Rodriguez[2], J.R. Morante[2],
[1]NCSR „Demokritos„, ATHENS, Greece,
[2]EME / CeRMAE, Electronics Department, BARCELONA, Spain

P-MST-47 **Fabrication and Characterization of Fully Polymeric Pressure Sensors Made from**

the Intrinsically Conductive Polymer PEDOT/PSS on Polyimide Membranes: Preliminary Results

Udo Lang, Philipp Rüst, Jurg Dual, Stefan Blunier,
ETH Zurich, ZÜRICH, Switzerland

P-MST-48 **Poly 3,4-Ethylenedioxythiophene (PEDT) Strain Gauge**

Ramona Mateiu[1], Michael Lillemose[2], Thomas Hansen[3], Oliver Gescke[2], Anja Boisen[2],
[1]SCF-Technologies, HERLEV, Denmark,
[2]MIC, DTU, LYNGBY, Denmark,
[3]Danish Polymer Center, DTU, LYNGBY, Denmark

P-MST-49 **Electroosmotic characteristics of polystyrene microchips - experiments and modeling**

Michal Pribyl, Walter Schrott, Jakub Stepanek, Dalimil Snita,
Institute of Chemical Technology, Prague, PRAHA, Czech Republic

Nanodevices

P-NDEV-1 **Thermal conductivity measurements of Low-k materials using thermoreflectance phenomenon**

Masashi Kuwahara[1], Osamu Suzuki[2], Syozo Takada[3], Nobuhiro Hata[3], Paul Fons[2], Junji Tominaga[2],
[1]AIST, TSUKUBA, Japan,
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[3]ASRC, AIST, TSUKUBA, Japan

P-NDEV-2 **Nanocrystal Non-Volatile Memories: Simulation, Fabrication and Characteristics**

Weihua Guan[1], Ming Liu[2], Zhigang Li[2], Yuan Hu[2], Shibing Long[2], Rui Jia[2],
[1]Chinese Academy of Sciences, BEIJING, China,
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P-NDEV-3 **FABRICATION OF TERAHERTZ METAMATERIALS BY LIFT-OFF OF S1813/LOR STACK**

Haifang Yang[1], Xiaoxiang Xia[2], Yiming Sun[2], Li Wang[2], Changzhi Gu[2],
Zheng Cui[3],
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P-NDEV-4 **Rectifying behavior of an individual Tin oxide nanowire**
Changzhi Gu[1], Xiaoxiang Xia[2], Zongli Wang[2], Junjie Li[2], Meimei Chen[2],
BEIJING, China,
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P-NDEV-5 **Large asymmetries of magnetoresistance loops in Co-line structures**
C Christides[1], I Raptis[2],
PATRAS, Greece,
[2]Institute of Microelectronics, ATHENS, Greece

P-NDEV-6 **Development of a SPM compatible ion emitter capable of atomic imaging resolution**
Jacques Gierak[1], David Martrou[2],
[1]LPN-CNRS, MARCOUSSIS, France,
[2]CEMES-CNRS, TOULOUSE, France

P-NDEV-7 **Analysis of transient adsorption processes using micro / nanocantilever oscillators**
Zoran Djuric, Ivana Jokic, Milos Frantlovic,
IHTM, BELGRADE, Serbia and Montenegro

P-NDEV-8 **Fabrication of Superprism using Nanoimprinted 2-D Polymer Photonic Crystals**
Choon-Gi Choi, Young-Tak Han, Sang Soon Oh,
ETRI, DAEJEON, South-Korea

P-NDEV-9 **Evaluation of Electronic Charged States of Individual Si Quantum Dot with and without Ge Core**
Yudi Darma[1], Seiichi Miyazaki[2],
[1]Institut Teknologi Bandung, BANDUNG, Indonesia,
[2]Hiroshima Univ., HIGASHI HIROSHIMA, Japan

P-NDEV-10 **Measurement of the resonant frequency of nano-scale cantilevers by hard contact readout**
Søren Dohn, Ole Hansen, Anja Boisen,
Technical University of Denmark, KGS. LYNGBY, Denmark

P-NDEV-11 **Device Optimization: Asymmetric Poly-silicon and TiN Gate FinFETs**
Hangeon Kim,
Inha Univ., INCHEON, South-Korea

P-NDEV-12 **Nanoelectromechanical Device of Laterally Deflectable Cantilever Arrays**
Sara Ghatnekar-Nilsson[1], Gang Luo[1], Dan Hessman[1], Ivan Maximov[1], Adrian Kewell[2], Jan Krüger[2], Mariusz Graczyk[1], Hongqi Xu[1], Lars Montelius[1],
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P-NDEV-13 **A Method for Increasing Surface Area between Titania and Various Polymers in Hybrid Photovoltaic Cell**
Hyun-Jung Her, Woon-Hyuk Baek, C. J. Kang, Yong-Sang Kim,
Myongji University, YONGIN, South-Korea

P-NDEV-14 **Pressure sensitive MOEMS based on photonic crystal membranes**
Vito Errico[1], Andrea Locatelli[2], Daniele Modotto[2], Costantino De Angelis[2], Massimo De Vittorio[1],
[1]CNR/INFM-ISUFI-Università del salento, LECCE, Italy,
[2]Università degli studi di Brescia, BRESCIA, Italy

P-NDEV-15 **Focused ion beam fabrication and functionalization of CMOS integrated silicon nanocantilevers**
Xavier Borrise[1], Gemma Rius[2], Julien Arcamone[2], Jordi Llobet[2], Francesc Perez-Murano[2],
[1]Institut de Microelectronica de Barcelon, BELLATERRA, BARCELONA, Spain,
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P-NDEV-16 **Modeling and fabrication of photonic crystal lenses designed with genetic algorithms**
J. Marques-Hueso, L. Sanchis, J. Martínez Pastor,
University of Valencia, VALENCIA, Spain

P-NDEV-17 **Electron beam size determination based on an intelligent substrate**
Helmut Weigand[1], M. Fleischer[2], D.P. Kern[2],
[1]University of Tuebingen, TUEBINGEN, Germany,
[2]University of Tuebingen / IAP, TUEBINGEN, Germany

P-NDEV-18 **Characterization at the nanometer scale of local electron beam irradiation of CNT based devices**
Gemma Rius,
IMB-CNM, BELLATERRA, Spain

P-NDEV-19 **Nanoscale Floating-Gate Memory using Self-Assembled NiSi2 Nanocrystals**
Seung-Beck Lee, Chang-Seung Woo,
Hanyang University, SEOUL, South-Korea

P-NDEV-20 **Schottky barrier heights of ErSi1.7 Schottky diodes**
M. Jun[1], Y. Kim[2], C. Choi[2], T. Kim[2], S. Oh[2], M. Jang[2],
, DAEJEON, South-Korea,
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P-NDEV-21 **Label-Free On-Chip Electronic Detection of DNA-Hybridization on Nanoparticle Array**
Hiroshi Shiigi[1], Shiho Tokonami[2], Tsutomu Nagaoka[1], Masashi Iwamoto[1], Yukiteru Nishide[1],
[1]Osaka Prefecture University, SAKAI, Japan,
[2]Hiroshima University, HIGASHI-HIROSHIMA, Japan

P-NDEV-22 **Plasmon confinement in V-groove waveguides fabricated by NanoImprint Lithography**
Irene Fernandez-Cuesta[1], Rasmus Bundgaard Nielsen[2], Alexandra Boltasseva[3], Dominique Heinis[4], Xavier Borrisé[1], Niek Van Hulst[4], Francesc Perez-Murano[1], Anders Kristensen[2],
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[4]Institut de Ciencies Fotoniques, CASTELDEFELLS, Spain

P-NDEV-23 **Design of a Tunable Photonic Band Gap Filter**
Borriboon Thubthimthong, Franck Chollet,
Nanyang Technological University, SINGAPORE, Singapore

Nanoimprint Lithography

P-NIL-1 **Fabrication of Micro Mold for Hot-Embossing of Polyimide Microfluidic Platform By Using Electron Beam Lithography Combined With Ion Coupled Plasma**
Sung-Won Youn, Toshihiko Noguchi, Masaharu Takahashi, Ryutaro Maeda,
National Institute of AIST, TSUKUBA, IBARAKI, Japan

P-NIL-2 **Boron nitride stamp for ultra-violet nanoimprinting lithography fabricated by focused ion beam lithography**
Ali Ozhan Altun, Jun-Ho Jeong, Jong-Joo Rha, Ki-Don Kim, Eung-Sug Lee,
Korea Institute of Machinary and Mat., DAEJEON, South-Korea

P-NIL-3 **Micro lens array imprinted on Pyrex glass by using amorphous Ni-P alloy mold**
Harutaka Mekaru[1], Tomoyuki Tsuchida[2], Junichi Uegaki[2], Manabu Yasui[3], Michiru Yamashita[4], Masaharu Takahashi[1],
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[2]Elionix Inc., TOKYO, Japan,
[3]Kanagawa Industrial Technology Center, EBINA, Japan,
[4]Hyogo Prefectural Institute of Technolog, MIKI, Japan

P-NIL-4 **Residual layer thickness in nanoimprint: experiments and coarse-grain simulation**
Vadim Sirotkin[1], N. Kehagias[2], V. Reboud[2], C.M. Sotomayor Torres[2], A. Svintsov[1], Sergey Zaitsev[1],
[1]IMT RAS, CHERNOGOLOVKA, Russia,
[2]Tyndall National Institute, University C, CORK, Ireland

P-NIL-5 **Polymers below the critical molecular weight for thermal imprint lithography**
Nicolas Bogdanski, Matthias Wissen, Saskia Moellenbeck, H.-C. Scheer,
University of Wuppertal, WUPPERTAL, Germany

P-NIL-6 **Custom-specific UV nanoimprint templates and life time of antisticking layers**
Holger Schmitt[1], Martin Zeidler[2], Mathias Rommel[2], Heiner Ryssel[1],
[1]University Erlangen-Nuremberg, ERLANGEN, Germany,
[2]Fraunhofer IISB, ERLANGEN, Germany

P-NIL-7 **3-D nano-template fabrication by means of greyscale electron beam lithography**
Axel Rudzinski[1], Ulrich Barth[1], Michael Kahl[1], Björn-Andre Hühn[2], Stefan Kopetz[2], Maxim Fadel[3], Andreas Neyer[2],
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[3]Lehrstuhl HFT, Uni-Dortmund, DORTMUND, Germany

P-NIL-8 **Low thermal shrinkage of nonimprinted glass pattern using Glasia as a precursor**
Motoki Okinaka[1], Hiroshi Tsushima[2], Toshiyuki Tachibana[2], Yoshifumi Ichinose[2], Emi Watanabe[2], Keiichi Yanagisawa[1], Kazuhito Tsukagoshi[1], Yoshinobu Aoyagi[3],
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[2]Nippon Paint Co. LTD., OSAKA, Japan,
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P-NIL-9 **Nanosilver particles-based conductive pattern fabrication using direct UV-imprint lithography**
Soonwon Lee,
Korea Institute of Machinery & Materials, DAE-JEON, South-Korea

P-NIL-10 **Numerical Analysis of Polymer Flow during UV-NIL Process**
Ki-don Kim,
Korea Institute of Machinery and Materia, DAE-JEON, South-Korea

P-NIL-11 **Moire and Dual Grating Aligning Method in Nanoimprint Lithography**
Geehong Kim,
Korea Institute of Machinery and Materia, DAEJEON, South-Korea

P-NIL-12 **Simplified Nanoimprint Lithography process towards Protein Patterning**
Santos Merino, Aritz Retolaza, Pedro Heredia, Celia Morales, Juan Antonio Alduncin, David Mecerreyes,
Fundación Tekniker, EIBAR, Spain

P-NIL-13 **Analysis of Time Dependent Polymer Deformation based on a Viscoelastic Model in Thermal Imprint Process**
Hideki Takagi[1], Masaharu Takahashi[1], Ryutaro Maeda[1], Yuki Onishi[2], Yasuroh Iriye[2], Takuya Iwasaki[2], Yoshihiko Hirai[3],
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[2]Mizuho Information and Research Institut, TOKYO, Japan,
[3]Osaka Prefecture University, SAKAI, OSAKA, Japan

P-NIL-14 **High quality patterns produced by nanoimprint lithography and inductive coupled plasma etching**
Brian Bilenberg[1], Colin Welch[2],
[1]NIL Technology, KONGENS LYNGBY, Denmark,
[2]Oxford Instruments Plasma Technology, BRISTOL, United Kingdom

P-NIL-15 **Nanofluidic device fabricated by nanoimprint lithography for DNA stretching applications**
Estefania Abad, Santos Merino, Aritz Retolaza, Aritz Juarros,
Fundacion Tekniker, EIBAR, Spain

P-NIL-16 **A novel hydrostatic pressuring mechanism for soft UV-imprinting process**
Fang-Sung Cheng,
TAIPEI, Taiwan

P-NIL-17 **NanoImprint of inorganic sol-gel materials : rheological properties and 3D patterning**
Christophe Peroz, Vanessa Chauveau, Etienne Barthel, Elin Sondergard,
Joint Lab. CNRS/Saint-Gobain, AUBERVILLIERS, France

P-NIL-18 **Molecular dynamics study on deformation of polycrystalline Si mold in nanoimprint**
Masaaki Yasuda, Shuhei Horimoto, Kazuhiro Tada, Yoshihisa Kimoto, Hiroaki Kawata, Yoshihiko Hirai,
Osaka Prefecture University, OSAKA, Japan

P-NIL-19 **Nano-scale Patterning using the Roll Typed UV-Nanoimprint Lithography**
Soo Yeon Park, SeungWoo Lee, ShinHo Kim, JaeJong Lee,
KIMM, DAEJEON, South-Korea

P-NIL-20 **Equalising stamp and substrate deformations in solid parallel-plate UV-based nanoimprint lithography**
Iris Bergmair[1], Michael Mühlberger[1], Markus Gusenbauer[1], Rainer Schöftner[1], Kurt Hingerl[2],
[1]Profactor, STEYR-GLEINK, Austria,
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P-NIL-21 **Mold deformation in Nanoimprint Lithography**
Santos Merino[1], Aritz Juarros[1], Aritz Retolaza[1], Helmut Schift[2], Sergey Zaitsev[3],
[1]Fundación Tekniker, EIBAR, Spain,
[2]Paul Scherrer Institute, VILLIGEN, Switzerland,
[3]Institute of Microelectronics Technology, CHERNOGOLOVKA, Russia

P-NIL-22 **Wafer scale fabrication of Ormocer dye lasers by combined nanoimprint and photolithography**

Mads Brøkner Christiansen[1], Ateeq Nasir[1], Gideon Peter Caringal[1], Anna Klukowska[2], Anders Kristensen[1],
[1]Technical University of Denmark (DTU), LYNGBY, Denmark, [2]Micro resist technology gmbH, BERLIN, Germany

P-NIL-23 **Influence of PEB in inorganic positive EB resist**

Jun Taniguchi[1], Miyako Sizuno[1], Kenta Ogino[1], Kiyoshi Ishikawa[2],
[1]Tokyo University of Science, NODA CHIBA, Japan,
[2]TOKYO OHKA KOGYO CO., LTD., 1590 TABATA, SAMUKAWA, KOZA, KANAGAWA, Japan

P-NIL-24 **Measurement of demolding forces in full wafer thermal nanoimprint**

Vera Trabadelo[1], Helmut Schift[1], Santos Merino[2], Sandro Bellini[3],
Jens Gobrecht[1],
[1]Paul Scherrer Institut, VILLIGEN PSI, Switzerland,
[2]Fundacion Tekniker, EIBAR, Spain,
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P-NIL-25 **Direct Fabrication of Rigid Microstructures on Metal Rollers Using Dry Film Resist**

Liang-Ting Jiang[1], Tzu-Chien Huang[2], Chien-Ren Chiou[2], Sen-Yeu Yang[2],
TAIPEI, Taiwan,
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P-NIL-26 **Full process development for high resolution NIL stamp replication**

Stefan Landis[1], N Chaix[2], C Gourgon[2], C Perret[2],
GRENOBLE, France,
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P-NIL-28 **Analysis of the filling behaviour of trenches via air bubble tracking**

Saskia Möllenbeck[1], M Wissen[1], N Bogdanski[1], HC Scheer[1], J Zajadacz[2], K Zimmer[2],
[1]University of Wuppertal, WUPPERTAL, Germany,
[2]Institute of Surface Modification, LEIPZIG, Germany

P-NIL-29 **Fabrication of three dimensional metal films with extraordinary transmission by reversal imprint lithography**

Hsuen-Li Chen[1], S. Y. Chuang[1], S. S. Kuo[1], C. H. Lin[2],
[1]National Taiwan University, TAIPEI, Taiwan,

[2]*National Nano Device Lab., HSINCHU, Taiwan*

P-NIL-30 **Fabrication of free-standing SU-8 subwavelength grating by UV curing imprint**
Xudi Wang[1], Yanlin Liao[2], Liangjin Ge[3], Shaojun Fu[3], Yifang Chen[4], Zheng Cui[4],
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[2]*Anhui University, HEFEI, China,*
[3]*University of Science and Technology of, HEFEI, China,*
[4]*Rutherford Appleton Laboratory, OXFORDSHIRE, United Kingdom*

P-NIL-31 **A nanoimprint lithography for fabricating SU-8 gratings for near-infrared to deep-UV application**
Shenqi Xie[1], Ran Liu[1], Xinping Qu[1], Yifang Chen[2],
[1]*Fudan University, SHANGHAI, China,*
[2]*Rutherford Appleton Laboratory, OXON, United Kingdom*

P-NIL-32 **Fabrication of Nanoimprint Stamps for Rainbow Holograms using SEM based E-Beam Lithography**
Arne Schleunitz[1], Alexander Firsov[1], Alexander Mai[1], A. Svintsov[2], S. Zaitsev[2],
[1]*BESSY GmbH, BERLIN, Germany,*
[2]*Intitute of Microelectronics Technology, CHERNOGOLOVKA, Russia*

P-NIL-33 **Fabrication of nano-hole array patterns on transparent conducting oxide layer using thermally curable nanoimprint lithography**
Kyeong Jae Byeon, Seon Yong Hwang, Heon Lee,
Korea university, SEOUL, South-Korea

P-NIL-34 **Comparison of step and repeat method of thermal and UV-imprinting using a commercial nanoimprint stepper**
Tomi Haatainen, Päivi Majander, Tapio Mäkelä, Jouni Ahopelto,
VTT, VTT, Finland

P-NIL-35 **Fabrication of Microlens Array Using Soft-Roller Embossing with Gas-pressurized Platform**
Sen-Yeu Yang, Fang-Sung Cheng, Po-Hsun Huang, Shu-Wen Xu,
National Taiwan University, TAIPEI, Taiwan

P-NIL-36 **Fabrication of 100 nm sized nano-patterns using water-soluble PVA template as an imprinting stamp**
Kang-Soo Han, Sung-Hoon Hong, Heon Lee,
Korea University, SEOUL, South-Korea

P-NIL-37 **Nanophotonic crystals with chiral elements by a hot embossing process in SU-8**
Bing-Rui Lu,
Fudan University, SHANGHAI, China

P-NIL-38 **Fabrication of Multi-layer Imprinting Master using Adaptive Two Step photo-lithography**
Han-Hyoung Kim, Seung-Kook Yang, Han-Suk Yoo, Seung-Yong Lee, Dong-Hoon Chang, Seung-Gol Lee, Beom-Hoan O, El-Hang Lee, Se-Geun Park,
Inha university, INCHEON, South-Korea

P-NIL-39 **Realization of silicon masters by electron-beam lithography for room temperature nanoimprint lithography on conjugated polymers**
Ripalta Stabile, Elisa Mele, Pompilio Del Carro, Luana Persano,
Andrea Camposeo, Roberto Cingolani, Dario Pisignano,
CNR-INFM ISUFI, LECCE, Italy

P-NIL-40 **Fabrication of patterned 3-D nickel components with electroforming and Step and Flash Imprint lithography**
Jeff Kettle, Kettle Jeff, Lalev Georgi, Dimov Stefan, Ivanov Atanas, Brosseau Emmanuel, Hoyle Robert,
Manufacturing Engineering Centre (MEC), CARDIFF, United Kingdom

P-NIL-41 **Development of functional imprint material for the Step and Flash Imprint Lithography process**
Jeff Kettle[1], Kettle Jeff[1], Lalev Georgi[1], Dimov Stefan[1], Coppo Paolo[2], Tattersha Carin[3], Turner Micheal[2],
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P-NIL-42 **Fabrication of Photonic Components by Nanoimprint Technology within ePIXnet**

Ulrich Plachetka[1], Anders Kristensen[2], Stijn Scheerlinck[3], Neil Whitbread[4], Jurriaan Huskens[5], Nam Il Koo[1], Heinrich Kurz[1],
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[3]Ghent University-IMEC, GHENT, Belgium,
[4]Bookham Technology, NORTHAMPTONSHIRE, United Kingdom,
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P-NIL-43 **ROLL TO ROLL METHOD TO PRODUCE FLUIDICS CHANNELS ON PLASTIC WEB**
Tapio Mäkelä, Tomi Haatainen, Päivi Majander, Jouni Ahopelto,
VTT, ESPOO, Finland

Nanoscale Engineering and Fabrication

P-NSC-1 **Physical Characterization and Electrical Properties of High-k Sol-Gel-Derived Zirconium Dioxide Films Prepared from 1-Octanol Solvent**
Fu-Hsiang Ko,
National Chiao Tung University, HSINCHU, Taiwan

P-NSC-2 **Fabrication of Two-Layer Stacked Poly-Si TFT CMOS Inverters Using Laser Crystallized Channel with High k gate electrode and metal gate**
Soon Young Oh[1], Chang-Geun Ahn[1], Jong Heon Yang[1], Woo Hyun Lee[2], Won Ju Cho[2], Jang Moon Gyu[1],
[1]ETRI, DAEJEON, South-Korea,
[2]Kwangwoon University, SEOUL, South-Korea

P-NSC-3 **Electrical property of conducting microbeads prepared with a novel electroless plating method by using gold nanoparticle**
Yojiro Yamamoto, Shintaro Takeda, Hiroshi Shiigi, Tsutomu Nagaoka,
Osaka Prefecture University, SAKAI, Japan

P-NSC-5 **Mirror electron microscope for inspecting of nanometer-sized defects in magnetic media**
Tomokazu Shimakura, Yoshio Takahashi, Masakazu Sugaya, Tadashi Ohnishi, Masaki Hasegawa, Hiroya Ohta,
Hitachi Ltd., TOKYO, Japan

P-NSC-6 **Narrow paths beyond limits of lithography**
Michal Zaborowski, Piotr Grabiec,
Inst. of Electron Technology, WARSAW, Poland

P-NSC-7 **In-line transmission electron microscopy for micro and nanotechnologies R&D**
Vincent Delaye, François Andrieu, François Aussenac, Olivier Faynot,
Cea Leti Minatec, GRENOBLE CEDEX 9, France

P-NSC-8 **Nanofabrication of SiC templates for direct hot embossing for metallic photonic structures and meta materials**
Yifang Chen[1], Yun Zhou[2], Zheng Cui[1], Ejaz Huq[1], Genhua Pan[2],
[1]Rutherford Appleton Laboratory, DIDCOT, United Kingdom,
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P-NSC-9 **Focused metal cluster beams for local deposition and organisation of high purity nanostructures**
Jacques Gierak[1], Ali Madouri[1], Joël Thomas[2],
[1]LPN-CNRS, MARCOUSSIS, France,
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P-NSC-12 **Evaluation of surface roughness of ULE substrates machined by Ar+ ion beam**
Yuichi Kurashima[1], Shuuhei Miyachi[1], Iwao Miyamoto[1], Manabu Ando[2], Atsushi Numata[2],
[1]Tokyo University of Science, NODA, Japan,
[2]EUVA, UTSUNOMIYA, Japan

P-NSC-13 **Improving the conductivity of platinum-containing nano-structures created by electron-beam-induced deposition**
Aurelien Botman[1], Marcel Hesselberth[2], Hans Mulders[3],
[1]Philips Research Laboratories, EINDHOVEN, The Netherlands,
[2]Leiden University, LEIDEN, The Netherlands,
[3]FEI Electron Optics, EINDHOVEN, The Netherlands

P-NSC-14 **Aluminium pre-patterning for highly ordered nanoporous anodized alumina**
Davide Piccinin[1], Maria Chiara Ubaldi[1], Virginia Stasi[2], Silvia Maria Pietralunga[1], Gianluca Cattaneo[3], Silvia Franz[3], Massimiliano Bestetti[3],
[1]CoreCom, MILANO, Italy,
[2]Fondazione Politecnico di Milano, MILANO, Italy,
[3]Politecnico di Milano, MILANO, Italy

P-NSC-15 **A comparative study of single nano-objects interconnection schemes**

Antonio Della Torre[1], Pasquale Marzo[2], Giuseppe Maruccio[2], Roman Krahne[2], Liberato Manna[2], Roberto Cingolani[2], Rosaria Rinaldi[2],
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P-NSC-16 **Chemical engineering of Silicon oxide surfaces using Micro-Contact printing for localizing adsorption events of nanoparticles, dendrimers and bacteria**
Jean-Christophe Cau, Aline Cerf, Christophe Thibault, Childérick Séverac, Jean-Pierre Peyrade, Christophe Vieu,
Laas-cnrs, TOULOUSE, France

P-NSC-17 **Reusability of nanostencils for the patterning of Aluminum nanostructures by selective wet etching**
Oscar Vazquez-Mena, Guillermo Villanueva, Marc A. F. Van den Boogaart, Veronica Savu, Juergen Brugger,
Ecole Polytechnique Fédérale de Lausanne, LAUSANNE, Switzerland

P-NSC-18 **Electron Biprism Fabrication by Focused-Ion-Beam Etching and Chemical-Vapor-Deposition**
Ken-ichiro Nakamatsu[1], Yamamoto Kazuo[2], Hirayama Tsukasa[2], Matsui Shinji[1],
[1]*University of Hyogo, HYOGO, Japan*,
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P-NSC-19 **Fabrication of nano-structure on GC using dry etching**
Jun Taniguchi,
Tokyo University of Science, NODA CHIBA, Japan

P-NSC-20 **LARGE AREA SUBMICRON-SIZED OLEDs ARRAY by NANOSPHERE LITHOGRAPHY**
Michelle Manca,
National Nanotechnology Labs, LECCE, Italy

P-NSC-21 **High-speed fabrication of Nano-structured optical devices with wide area**
Kazuma Kurihara,
AIST, TSUKUBA, IBARAKI, Japan

P-NSC-22 **Electrical and structural characterisation of single ZnO nanorods**
Thomas Weimann[1], Peter Hinze[1], Eva Schlenker[2], Andrey Barkin[3], Augustin Che Mofor[3], Bianca Postels[3], Andreas Waag[3],

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P-NSC-23 **Molecular Dynamics Study on Electron-Beam Assembly of Carbon Nanotubes**
Masaaki Yasuda,
Osaka Prefecture University, OSAKA, Japan

P-NSC-24 **Effect of Si-doping in In droplets on InP ring-like nanostructures on In0.49Ga0.51P grown by droplet molecular beam epiatxy**
Somchai Ratanathammaphan, Wipakorn Jewasuwan, Somsak Panyakeow, Somchai Ratanathammaphan,
Chulalongkorn University, BANGKOK, Thailand

P-NSC-25 **Transient Enhanced Diffusion(TED) of Boron in Silicon Substrate**
Soon-Yeol Park, Bum-Goo Cho, Young-Kyu Kim,
Inha Univ., INCHEON, South-Korea

P-NSC-26 **Ab-initio Calculations for Neutral Indium Migration in Biaxally Strained Silicon**
Young-Kyu Kim, Bum-Goo Cho, Soon-Yeol Park, Taeyoung Won,
Inha University, INCHEON, South-Korea

P-NSC-27 **Hybrid polymer/semiconductor microtubes: a new fabrication approach**
Cristian Giordano[1], Maria Teresa Todaro[1], Marco Palumbo[2], Laura Blasi[1], Vito Errico[1], Abdelmajid Salhi[1], Antonio Qualtieri[1], Giuseppe Gigli[1], Adriana Passaseo[1], Massimo De Vittorio[1],
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P-NSC-28 **Focused ion beam nano-structuring of Al2O3 dielectric layers for photonic applications**
Feridun Ay,
University of Twente, ENSCHEDE, The Netherlands

P-NSC-29 **Evaluation of nanomechanical, nanotribological and adhesive properties of ultrathin polymer resist film by AFM**
Adam Koszewski[1], Zygmunt Rymuza[1], Freimut Reuther[2],

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P-NSC-30 **An investigation of scanning probe microscopy on hydrophobic and hydrophilic surfaces carried out from atmospheric pressure plasma processes**
Mao-Nan Chang[1], H.-M. Lin[2], T.-H Chou[2], W.-T. Hsieh[3], C.-W. Chen[3],
[1]*National Nano Device laboratories, HSINCHU, Taiwan,*
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P-NSC-31 **Swelling of cross-linked polystyrene spheres in toluene**
Renhua Zhang, Andreas Best, T. Cherdhirankorn, K. Koynov, K. Graf, Ruediger Berger,
Max Planck Institute for Polymer Researc, MAINZ, Germany

P-NSC-32 **High-density plasma silicon oxide thin films grown at room-temperature**
Maria-Elena Vlachopoulou[1], P. D Dimitrakis[1], A. Tserepi[1],
V.Em.V Vamvakas[1], S. K Koliopoulou[1], P. Normand[1], E. Gogolides[1], D. Tsoukalas[2],
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P-NSC-33 **Towards a LED based on a photonic crystal nanocavity for single photon sources at telecom wavelength**
Annamaria Gerardino[1], Marco Francardi[2], Laurent Balet[3], Nicolas Chauvin[3], Christelle Monat[3], C Zinoni[3], LHL Li[3], BA Alloing[3], NT Le Thomas[3],
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P-NSC-34 **Electrical properties of ErSi2 nanowires formed on Si substrates**
Satoshi Yokoyama[1], Yusuke Katayama[1], Tomohiro Kobayashi[2],
Takashi Meguro[2], Xinwei Zhao[1], Ryouki Watanabe[1],
[1]*Tokyo University of Science, TOKYO, Japan,*
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P-NSC-35 **Electrothermal microgrippers for pick and place operations**
Karin N. Andersen,
Technical University of Denmark, KGS. LYNGBY, Denmark

P-NSC-36 **Electronic Structure of Embedded InAs Quantum Dot Molecules**
Nitidet Thudsalingkarnsakul, Teeravat Limwongse, Naparat Siripitakchai, Somsak Panyakeow, Songphol Kanjanachuchai,
Chulalongkorn University, BANGKOK, Thailand

P-NSC-37 **Line Edge Roughness (LER) reduction strategy for SOI waveguides fabrication**
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[1]Pirelli Labs, MILAN, Italy,
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Jens Bolten,
AMO GmbH, AACHEN, Germany

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Hong-Bay Chung,
Kwangwoon University, SEOUL, South-Korea

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Anupama Arun,
Ecole Polytechnique Federal De Lausanne, LAUSANNE, Switzerland

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Christian Kallesøe[1], Kristian Mølhave[1], Thomas Mårtensson[2], Torben Mikael Hansen[1], Lars Samuelson[2], Peter Bøggild[1],
[1]Technical University of Denmark, KGS. LYNGBY, Denmark,
[2]Lund University, LUND, Sweden

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Arne Schleunitz, Josef Kouba, Daniel Schondelmaier, Bernd Löchel,
BESSY GmbH, BERLIN, Germany

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Maria Kokonou[1], Claus Rebholz[1], Konstantinos Giannakopoulos[2], Charalabos Doumanidis[3],
[1]University of Cyprus, NICOSIA, Cyprus,
[2]IMS/NCSR „Demokritos„, ATHENS, Greece,
[3]MIT, CAMBRIDGE, United States of America

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Miyeon Song, James Lawton, Adriano Pulisciano, Alex Robinson, Richard Palmer,
University of Birmingham, BIRMINGHAM, United Kingdom

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Vinzenz Friedli[1], Ivo Utke[2], Martin Purrucker[2], Johann Michler[2],
[1]EMPA, Swiss Federal Laboratories for Mat, THUN, Switzerland,
[2]EMPA, THUN, Switzerland

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[1]CNM-Barcelona, BELLATERRA, Spain,
[2]ITQ, VALENCIA, Spain,
[3]ICMAB, BELLATERRA, Spain

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Chia-Tien Wu, Fu-Hsiang Ko,
, HSINCHU, Taiwan

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Andre Beyer[1], I. Ennen[1], A. Hütten[1], H. Rösner[2], W. Eck[3], A. Gölzhäuser[1],
[1]Universität Bielefeld, BIELEFELD, Germany,
[2]Forschungszentrum Karlsruhe, KARLSRUHE, Germany,

[3]*The Jackson Laboratory, BAR HARBOR, United States of America*

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Mark Summers, Mark Summers, Michael Brett,
University of Alberta, EDMONTON, Canada

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, KERMAN, Iran,
[2]*Chemical Engineering Departmen of Univer, KERMAN, Iran*

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[1]*Technical University of Denmark, LYNGBY, Denmark,*
[2]*The Nanometer Consortium, LUND, Sweden*

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[1]*Technical University of Denmark, LYNGBY, Denmark,*

[2]*University of Cambridge, LONDON, United Kingdom*

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Ramona Mateiu, Henrik Jensen, Morten Foverskov,
Steen Brummersted Iversen,
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Osaka Univ., TOYONAKA, Japan

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Fu-Der Lai[1], Chih Hsun Lin[2],
[1]*Institute of Electro-Optical Engineering, KAOHSIUNG, Taiwan,*
[2]*National Kaohsiung First University of S, KAOHSIUNG, Taiwan*

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Stephan Abermann,
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Christoph Schoendorfer, Alois Lugstein, Emmerich Bertagnolli
Vienna University of Technology, VIENNA, Austria

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Fu-Hsiang Ko,
National Chiao Tung University, HSINCHU, Taiwan

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Eberhard Baer, Daniel Kunder,
Fraunhofer IISB, ERLANGEN, Germany

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Xu Li, R. J. W. Hill, H. Zhou, C. D. Wilkinson, I. G. Thayne,
University of Glasgow, GLASGOW, United Kingdom

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Maik Hauguth, Burkhard E. Volland, Valentyn Ishshuk,
Daniel Dressler, Tobias Danz, Ivo W. Rangelow,
Technical University Ilmenau, ILMENAU, Germany

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Jinxing Liang[1], Fusao Kohsaka[2], Takahiro Matsuo[3], Xuefeng Li[2],
Toshitsugu Ueda[2],
, KITAKYUSHU, Japan,
[2]IPS, Waseda university, KITAKYUSHU, Japan,
[3]Sakamoto Electric MFG., FUKUOKA, Japan

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Kai Kolari,
ESPOO, Finland

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Philips Research Europe, EINDHOVEN, The Netherlands

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, HEFEI, China,
[2]Rutherford Appleton Laboratory, OXFORDSHIRE, United Kingdom

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Hsuen-Li Chen[1], C. Y. Lee[1], Y. P. Chen[1], L. A. Wang[1], Fu-Der Lai[2], P. K. Yang[1],
[1]National Taiwan University, TAIPEI, Taiwan,
[2]National Tsing Hua University, HSINCHU, Taiwan

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National Defense Accademy, YOKOSUKA, Japan

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Wei Xiong[1], Jinglei Du[1], Xiangang Luo[2], Chunlei Du[2], Yongkang Guo[1],
[1]Sichuan University, CHENGDU, China, [2]Institute of Optics and Electronics,CAS, CHENGDU, China

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B. Meliorisz[1], S. Partel[2], T. Schnattinger[1], T. Fühner[1], A. Erdmann[1], P. Hudek[2],
[1]Fraunhofer Institute IISB, ERLANGEN, Germany, [2]Vorarlberg Univ. of Applied Sciences, DORNBIRN, Austria

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Sven Haver, van, Olaf Janssen, Aura Nugrowati, Joseph Braat, Silvania Pereira,
Delft University of Technology, DELFT, The Netherlands

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Roxann Engelstad,
University of Wisconsin – Madison, MADISON, United States of America

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Dryver Huston[1], David Hurley[1], Brent Boerger[2], Robert Selzer[2], Brian Grenon[3],
[1]University of Vermont, BURLINGTON, VT, United States of America, [2]JMAR Systems, Inc., SOUTH BURLINGTON, VT, United States of America, [3]Grenon Consulting, Inc., COLCHESTER, VT, United States of America

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Artak Isoyan[1], Fan Jiang[1], Yang-Chun Cheng[1], John Wallace[1],
Quinn Leonard[1], Paul Nealey[1], Srinivas Bollepalli[2], Franco Cerrina[1],
[1]*University of Wisconsin-Madison, STOUGHTON, WI, United States of America,*
[2]*Intel Corporation, PORTLAND, OREGON, United States of America*

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Ken Murayama[1], Hiroshi Kuroda[1], Nobuyuki Mise[2], Takahisa Eimori[2],
Tsuneo Terasawa[2],
[1]*ASET and Hitachi Kenki FineTech Co., Ltd, TSUKUBA, Japan,*
[2]*Selete, TSUKUBA, Japan*

P-DIAG-2 **Static and Dynamic Bending Stresses in Silicon Microstructures**
Alexander M. Gigler[1], Michael Bauer[1],
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[1]*University of Munich – L M U, MUNICH, Germany,*
[2]*NanoWorld Services GmbH, ERLANGEN, Germany*

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Sara Baldock[1], P. R. Fielden[1], N. J. Goddard[1], H.R. Kretschmer[2], J.E. Prest[1], B. J. Treves Brown[1],
[1]*University of Manchester, MAMANCHESTER, United Kingdom,*
[2]*Siemens AG, BERLIN, Germany*

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F Mohd-Yasin,
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Despina Moschou[1], Michael Exarchos[2], Dimitrios Kouvatsos[3], George Papaioannou[2], Apostolos Voutsas[4],
[1]*NCSR Demokritos, AGHIA PARASKEVI ATTIKIS, Greece,*
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[3]*IMEL / NCSR Demokritos, AGHIA PARASKEVI*

ATTIKIS, Greece,
[4]Sharp Labs of America / LCD Laboratory, CAMAS, WA, United States of America

Resist and Resist Processing

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Alexander Philippou[1], Christoph Nölscher[1], Eckehard Schöll[2],
[1]Qimonda Dresden GmbH&Co OHG, DRESDEN, Germany,
[2]Inst. of Theoretical Physics, TU Berlin, BERLIN, Germany

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Xu Li[1], H. Zhou[1], J. Abrokwah[2], P. Zurcher[2], K. Rajagopalan[2],
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[1]University of Glasgow, GLASGOW, United Kingdom,
[2]Freescale Semiconductor, Inc., TEMPE, United States of America

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George Patsis[1], Dimitrios Drygiannakis[1], George Patsis[1],
Karl VanWerden[2], Andreas Boudouvis[3], Ioannis Raptis[1],
[1]NCSR Demokritos, AGHIA PARASKEVI, Greece,
[2]AZ Electronic Materials GmbH, WIESBADEN, Germany,
[3]School of Chemical Eng., NTUA, ATHENS, Greece

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George Patsis[1], Dimitrios Drygiannakis[1], George Patsis[1], Nickolaos Tsikrikas[1], George Kokkoris[1], Ioannis Raptis[1], Andreas Boudouvis[2], Evanglelos Gogolides[1], Panagiotis Argitis[1],
[1]NCSR Demokritos, AGHIA PARASKEVI, Greece,
[2]School of Chemical Eng., NTUA, ATHENS, Greece

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Minoru Toriumi, Kanako Toriumi,
Lab. Interdisciplinary Sci. Technol., TOKYO, Japan

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Ferdinand Walther[1], Ferdinand Walther[1], Marc Hennemeyer[1],
Michael Kaiser[2], Alexander M. Gigler[1], Helmut Herberg[2], Robert W. Stark[1],
[1]University of Munich - L M U, MUNICH, Germany,
[2]Munich University of Applied Sciences, MUNICH, Germany

P-RES-8 **Inherently conductive polymer thin film piezoresistors**
Michael Lillemose, Martin Spieser, Nikolaj O Christiansen,
Anders Christensen, Anja Boisen,
DTU - Technical University of Denmark, KGS. LYNGBY, Denmark

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Nikolay Lebedev, Gennadi Ivanchenko,
Volgograd State University, VOLGOGRAD, Russia

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Nikolay Lebedev, Gennadi Ivanchenko,
Volgograd State University, VOLGOGRAD, Russia

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Sang-kon Kim,
Hanyang University, ANSAN, South-Korea

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Nikolay Lebedev, Mikhail Belonenko, Elena Demushkina,
Volgograd State University, VOLGOGRAD, Russia

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L. Michalas[1], G.J. Papaioannou[1], D.N. Kouvatsos[2], F. Farmakis[2],
A.T. Voutsas[3],
[1]University of Athens, ATHENS, Greece,

[2]NCSR Demokritos, ATHENS, Greece,
[3]Sharp, CAMAS, United States of America

P-RES-14 **Deprotection kinetic monitoring of a 193nm resist by ellipsometry**
Jean-herve Tortai[1], Hassan Ridaoui[1], Samirr Derrough[2], Claire Sourd[2],
[1]CNRS, GRENOBLE, France,
[2]CEA/LETI/REC, GRENOBLE, France

P-RES-15 **Reduction of Polarization and Swing Effects in High Numerical Aperture Exposure Systems by utilizing Resist Antireflective Coating**
Hsuen-Li Chen[1], Wonder Fan[2], C. H. Lin[2], S. Y. Chuang[1],
[1]National Taiwan University, TAIPEI, Taiwan,
[2]National Nano Device Lab., HSINCHU, Taiwan

P-RES-16 **The Effect of Direct PAG Incorporation into the Polymer Main Chain on Reactive ion Etch Resistance of 193 nm and EUV Chemically Amplified Resists**
Clifford Henderson[1], Cheng-Tsung Lee[1], Mingxing Wang[2], Kenneth Gonsalves[2], Wang Yueh[3], Jeanette Roberts[3],
[1]Georgia Institute of Technology, ATLANTA, United States of America,
[2]University of North Carolina Charlotte, CHARLOTTE, NC, United States of America,
[3]Intel Corporation, HILLSBORO, OR, United States of America

RF-MEMS / NEMS

P-RF-1 **Design of Low Actuation-Voltage High Isolation S-Band MEMS Capacitive Switches**
Anatoliy Batmanov, Abbas Omar, Edmund Burte,
University of Magdeburg, MAGDEBURG, Germany

P-RF-2 **A Miniaturized RMS Voltage Sensor Based on a Torsional Actuator in Bulk Silicon Technology**
Jan Dittmer[1], Stephanus Büttgenbach[1], Rolf Judaschke[2],
[1]Technische Universität Braunschweig, BRAUNSCHWEIG, Germany,
[2]Physikalisch Technische Bundesanstalt, BRAUNSCHWEIG, Germany

P-RF-3 **Metallization scheme and release methods for fabrication of RF MEMS switches**
Shimul Chandra Saha[1], Håkon Sagberg[2], Erik Poppe[2], Geir Uri Jensen[2], Trond Sæther[1],
[1]NTNU, TRONDHEIM, Norway,
[2]SINTEF ICT, OSLO, Norway

P-RF-4 **Multi-Modal Energy Harvesting System**
Francesc Torres,
Universitat Autonoma de Barcelona, BELLATERRA, Spain

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19:00 - 20:30	Exhibition Opening	
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Monday 24 September		
08 :30 – 9 :00	Opening of MNE07 conference	
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Coffee break		
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Lunch		
14 :00 – 15 :50		
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4A - Audience Micro and Nanosystems for Biology II	4B - 101 Nanoscale Engineering & Fabrication II	4C - 201 Electron & Ion Beam Lithography
Lunch		
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